



# 시험 성적서

## TEST REPORT

페이지(page) : ( 1 ) / ( 총(Total) 56 )

성적서 번호 Report No.		ICRT-TR-E211124-0A	
신청자 Client	기관명 Name	Speech Processing Solutions GmbH	
	주소 Address	Gutheil Schoder Gasse 8-12, 1100 Vienna, Austria	
시험대상품목 Sample description		Digital Voice Recorder (Voice Tracer)	
모델명 Type designation		DVT4110	
정격 Ratings		DC 5.0 V	
시험장소 Place of test		<input checked="" type="checkbox"/> 고정시험(Inside test) <input type="checkbox"/> 현장시험(Field test) 주소지(Address): 112, Hwanggeum 3-ro 7beon-gil, Hagun-ri, Yangchon-eup, Gimpo-si, Gyeonggi-do, Korea	
시험기간 Date of test		03. May. 2021 ~ 07. May. 2021	
시험방법/항목 Test Method/Item		FCC Part 15 Subpart C §15.247	
시험결과 Test Results		Refer to 3. Test Summary	
확인 Affirmation	작성자 Tested by	기술책임자 Technical Manager	
	성명 Name	Min-Gi, Son (Signature)	Hong-Kyu, Lee (Signature)
<input type="checkbox"/> 위 성적서는 고객이 제공한 시료에 대한 시험결과입니다. This is certified that the above mentioned products have been tested for the sample			
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# Contents

1. Applicant & Manufacturer & Test Laboratory Information.....	4
1.1 Applicant information.....	4
1.2 Manufacturer Information .....	4
1.3 Test Laboratory Information .....	4
2. Equipment under Test(EUT) Information .....	5
2.1 General Information.....	5
2.2 Additional Information .....	5
2.3 Mode of operation during the test .....	5
2.4 Modifications of EUT .....	5
2.5 Reason of Additional Model Name.....	5
3. Test Summary .....	6
3.1 Test standards and results .....	6
3.2 Purpose of the test .....	6
3.3 Test Methodology .....	6
3.4 Configuration of Test System.....	6
3.5 Antenna requirement.....	7
4. Used equipment on test .....	8
5. 6 dB Bandwidth .....	9
5.1 Operating environment .....	9
5.2 Measurement method .....	9
5.3 Test setup .....	9
5.4 Test data .....	10
6. Maximum Conducted (Average) Output Power.....	15
6.1 Operating environment .....	15
6.2 Measurement method .....	15
6.3 Test setup .....	15
6.4 Test data .....	16
7. Power Spectral Density.....	17
7.1 Operating environment .....	17
7.2 Measurement method .....	17
7.3 Test setup .....	17
7.4 Test data .....	18
8. Conducted Spurious Emission.....	23
8.1 Operating environment .....	23
8.2 Measurement method .....	23
8.3 Test setup .....	23
8.4 Test data .....	24
9. Radiated Spurious Emission .....	37
9.1 Operating environment .....	37
9.2 Measurement method .....	37
9.3 Test setup .....	37
9.4 Test data .....	39



10. Power Line Conducted Emission..... 54

    10.1 Operating environment ..... 54

    10.2 Measurement method ..... 54

    10.3 Test setup ..... 54

    10.4 Test data ..... 55

**Revision History**

Issued Report No.	Issued Date	Revisions	Effect Section
ICRT-TR-E211124-0A	17-May-2021	Initial Issue	All



# **1. Applicant & Manufacturer & Test Laboratory Information**

## **1.1 Applicant information**

Applicant	Speech Processing Solutions GmbH
Address	Gutheil Schoder Gasse 8-12, 1100 Vienna, Austria
Contact Person	Wolfgang Spannlang
Telephone No.	+43-1-60529-4691
Fax No.	-
E-mail	wolfgang.spannlang@speech.com

## **1.2 Manufacturer Information**

Manufacturer	Zaram Technology Inc.
Address	2 Fl, FineVenture Building, 41, Seongnam-daero 925 Beon-gil, Seongnam-si, Gyeonggi-do, 13496, Republic of Korea

## **1.3 Test Laboratory Information**

Conducted tests were performed at	
Laboratory	ICR Co., Ltd.
Address	112, Hwanggeum 3-ro 7beon-gil, Hagun-ri, Yangchon-eup, Gimpo-si, Gyeonggi-do, Korea
Telephone No.	+82-2-6351-9002
Fax No.	+82-2-6351-9007
RRA No.	KR0165
KOLAS No.	KT652
Test Firm Registration Number	490614



## 2. Equipment under Test(EUT) Information

### 2.1 General Information

Product Name	Digital Voice Recorder (Voice Tracer)
Brand Name	-
Model Name	DVT4110
Additional Model Name	DVT6110, DVT7110, DVT8110
FCC ID	2AD4M-VTZ0119
Power Supply	DC 5.0 V

### 2.2 Additional Information

Equipment Class	DTS-Digital Transmission System
Device Type	Stand-alone
Operating Frequency	2 412 MHz ~ 2 462 MHz
RF Output Power	5.63 dBm
Number of Channel	11
Modulation Type	802.11b: DSSS Modulation 802.11g/n(HT20): OFDM Modulation
Antenna Type	PCB Antenna
Antenna Gain	-0.82 dBi
Antenna Operating Mode	Single Antenna Equipment with only one antenna

### 2.3 Mode of operation during the test

- The EUT is continuous transmission mode during the test with set to each of the Low Channel, Middle Channel, and High Channel at the worst case data rate. The worst case data rate for each modulation is determined 1 Mbps for IEEE 802.11b, 6 Mbps for IEEE 802.11g, 6.5 Mbps for HT20.

### 2.4 Modifications of EUT

- None

### 2.5 Reason of Additional Model Name

NO	Family model name	Differential point
1	DVT6110	Basic model and electric performance, structure and circuit are the same, but simple derivative model name is added according to buyer request
2	DVT7110	
3	DVT8110	



### 3. Test Summary

#### 3.1 Test standards and results

FCC Part 15 Subpart C			
Clause	Test items	Applied	Results
§15.247 (a) (2)	6 dB Bandwidth	<input checked="" type="checkbox"/>	PASS
§15.247 (b) (3)	Maximum Conducted (Average) Output Power	<input checked="" type="checkbox"/>	PASS
§15.247 (e)	Power Spectral Density	<input checked="" type="checkbox"/>	PASS
§15.247 (d)	Conducted Spurious Emission	<input checked="" type="checkbox"/>	PASS
§15.247 (d) & §15.209 & §15.205	Radiated Spurious Emission	<input checked="" type="checkbox"/>	PASS
§15.207	Power Line Conducted Emission	<input checked="" type="checkbox"/>	PASS
§15.203	Antenna Requirement	<input checked="" type="checkbox"/>	PASS

#### 3.2 Purpose of the test

- To determine whether the equipment under test fulfills the requirements of the standards stated in FCC Part 15 Subpart C Section 15.247.

#### 3.3 Test Methodology

Both conducted and radiated testing was performed according to the procedures in ANSI C63.10: 2013.

Radiated testing was performed at a distance of 3 m from EUT to the antenna.

#### 3.4 Configuration of Test System

##### 3.4.1 Radiated emission test

Preliminary radiated emissions test were conducted using the procedure in ANSI C63.10: 2013 to determine the worse operating conditions. Final radiated emission tests were conducted at 3 m Semi Anechoic Chamber. The turntable was rotated through 360 degrees and the EUT was tested by positioned three orthogonal planes to obtain the highest reading on the field strength meter. Once maximum reading was determined, the search antenna was raised and lowered in both vertical and horizontal polarization.

##### 3.4.2 AC power line conducted emission test

The EUT was connected to LISN. All supporting equipment were connected to another LISN. Preliminary Power line Conducted Emission test was performed by using the procedure in ANSI C63.10: 2013 to determine the worse operating conditions.



### 3.5 Antenna requirement

According to §15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this Section.

The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

And according to §15.247(b)(4), the conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi.

Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

#### 3.5.1 Result: Pass

The transmitter has a **PCB Antenna**. The directional gain of the antenna is **-0.82 dBi**.



#### 4. Used equipment on test

	Description	Model Name	Serial Number	Manufacturer	Next Cal. (cycle)
<input checked="" type="checkbox"/>	Spectrum analyzer	FSW85	100864	Rohde & Schwarz	2022. 03. 22 (1Y)
<input checked="" type="checkbox"/>	Signal Generator	SMB100A	180607	Rohde & Schwarz	2022. 03. 03 (1Y)
<input checked="" type="checkbox"/>	Wideband Power Sensor	NRP-Z91	103704	Rohde & Schwarz	2022. 04. 15 (1Y)
<input checked="" type="checkbox"/>	DC Power Supply	6603D	672483	Topward	2022. 03. 03 (1Y)
<input checked="" type="checkbox"/>	Loop Antenna	HFH2-Z2	100506	Rohde & Schwarz	2021. 06. 27 (2Y)
<input checked="" type="checkbox"/>	TRILOG BROADBAND ANTENNA	VULB9162	120	SCHWARZBECK	2022. 12. 15 (2Y)
<input checked="" type="checkbox"/>	RF Pre Amplifier	SCU08	100747	Rohde & Schwarz	2022. 04. 14 (1Y)
<input checked="" type="checkbox"/>	DOUBLE-RIDGE WAVEGUIDE HORN ANTENNA	HF907	102556	Rohde & Schwarz	2022. 08. 21 (1Y)
<input checked="" type="checkbox"/>	RF Pre Amplifier	SCU18	102342	Rohde & Schwarz	2022. 04. 14 (1Y)
<input checked="" type="checkbox"/>	Horn Antenna	LB-42-10-C-KF	J202024625	AINFO Inc.	2022. 03. 04 (1Y)
<input checked="" type="checkbox"/>	RF Pre Amplifier	AMF-4F-18265-35-8P-1	771846	MITEQ	2022 .03. 04 (1Y)
<input checked="" type="checkbox"/>	Horn Antenna	LB-28-10-C-KF	J202024627	AINFO Inc.	2022. 03. 04 (1Y)
<input checked="" type="checkbox"/>	RF Pre Amplifier	AMF-4D-260400-45-6P	779919	MITEQ	2022 .03. 04 (1Y)
<input checked="" type="checkbox"/>	EMI Test Receiver	ESR26	101461	Rohde & Schwarz	2022. 04. 14 (1Y)
<input checked="" type="checkbox"/>	EMI Test Receiver	ESR26	101462	Rohde & Schwarz	2022. 04. 14 (1Y)
<input checked="" type="checkbox"/>	LISN	ENV216	102194	Rohde & Schwarz	2022. 04. 15 (1Y)
<input checked="" type="checkbox"/>	EMI Test Receiver	ESR3	102119	Rohde & Schwarz	2022. 04. 14 (1Y)
<input checked="" type="checkbox"/>	ATTENUATOR	WA76-20-1313	1633	WEINSCHEL	2022. 03. 14 (1Y)

※ All test equipment used is calibration on a regular basis.





## 5. 6 dB Bandwidth

### 5.1 Operating environment

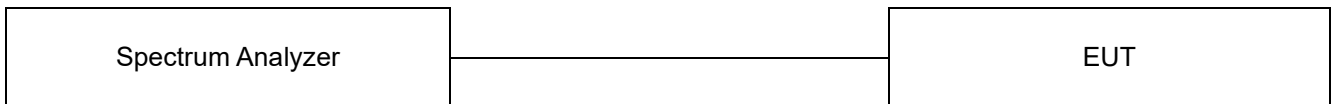
Temperature : 25 °C  
Relative humidity : 46 %

### 5.2 Measurement method

Standard : §15.247 (a) (2)

### 5.3 Test setup

The antenna output of the EUT was connected to the spectrum analyzer. The resolution bandwidth is set to 100 kHz, and peak detection was used. The 6 dB bandwidth is defined as the total spectrum over which the power is higher than the peak power minus 6 dB.





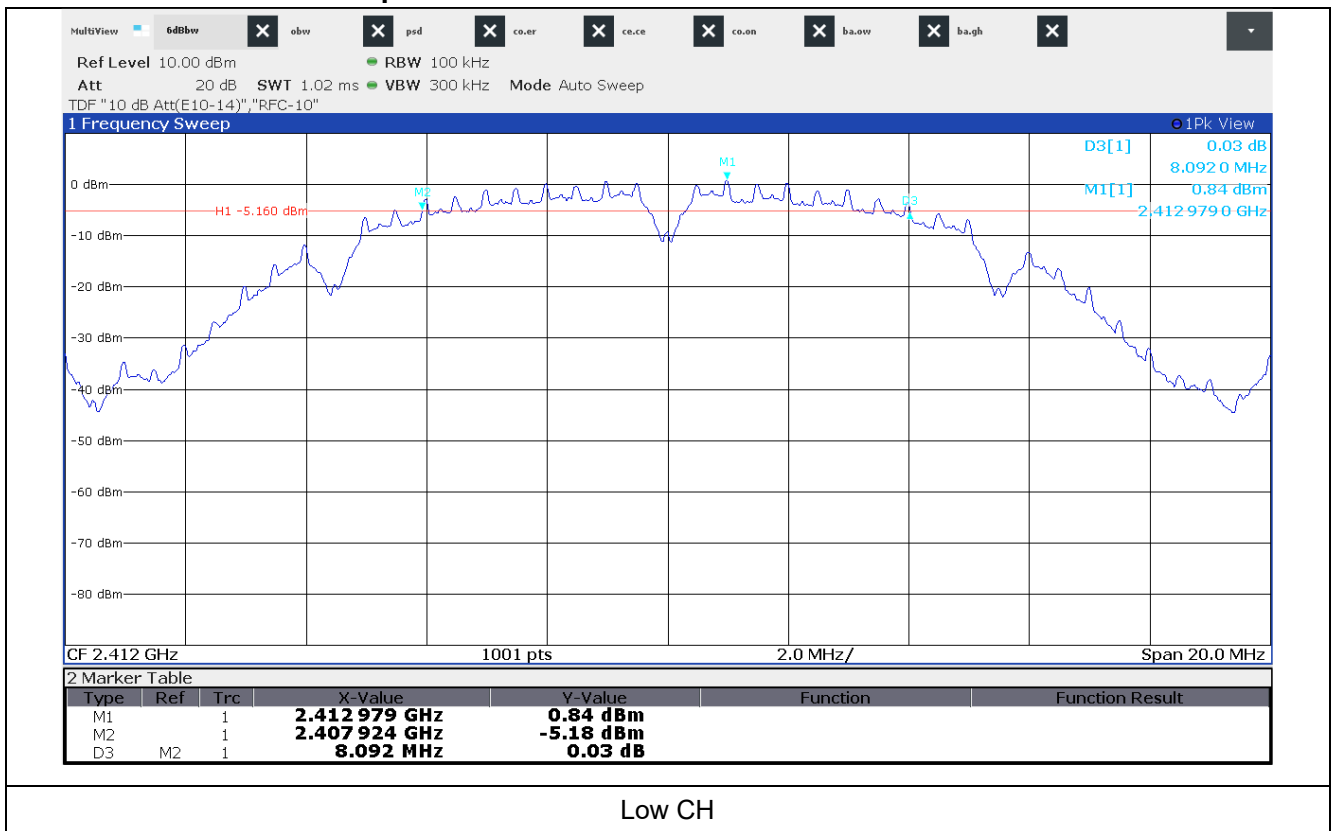
### 5.4 Test data

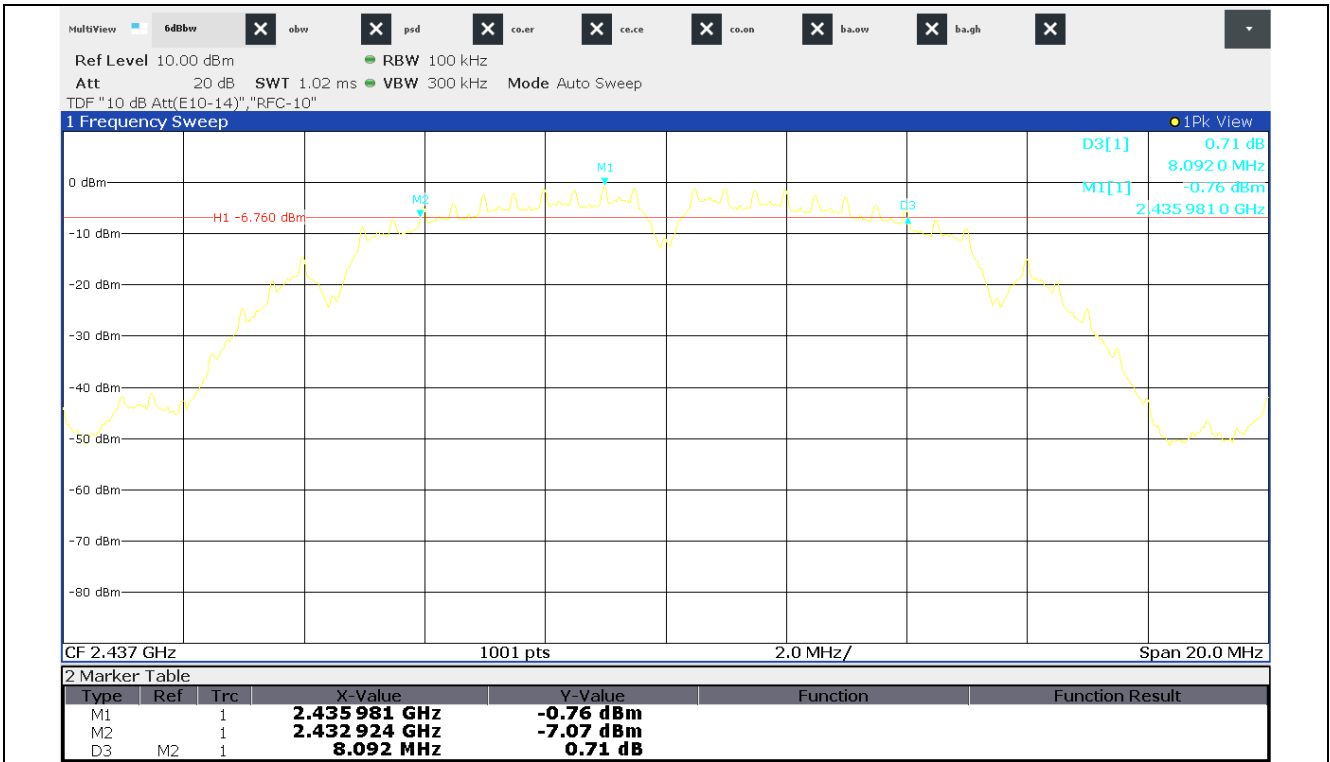
Test date : 03. May. 2021  
 Operating mode : Transmit mode  
 Test Result : Pass

#### 5.4.1 Measured Results

Modulation Type	Channel (Frequency)	Measured Value (MHz)	Limit (kHz)
802.11b	0 (2 412 MHz)	8.092	at least 500
	6 (2 437 MHz)	8.092	
	11 (2 462 MHz)	8.092	
802.11g	0 (2 412 MHz)	16.364	
	6 (2 437 MHz)	16.364	
	11 (2 462 MHz)	16.364	
802.11n(HT20)	0 (2 412 MHz)	17.602	
	6 (2 437 MHz)	17.622	
	11 (2 462 MHz)	17.602	

#### 5.4.2 Measured Graph for 802.11b





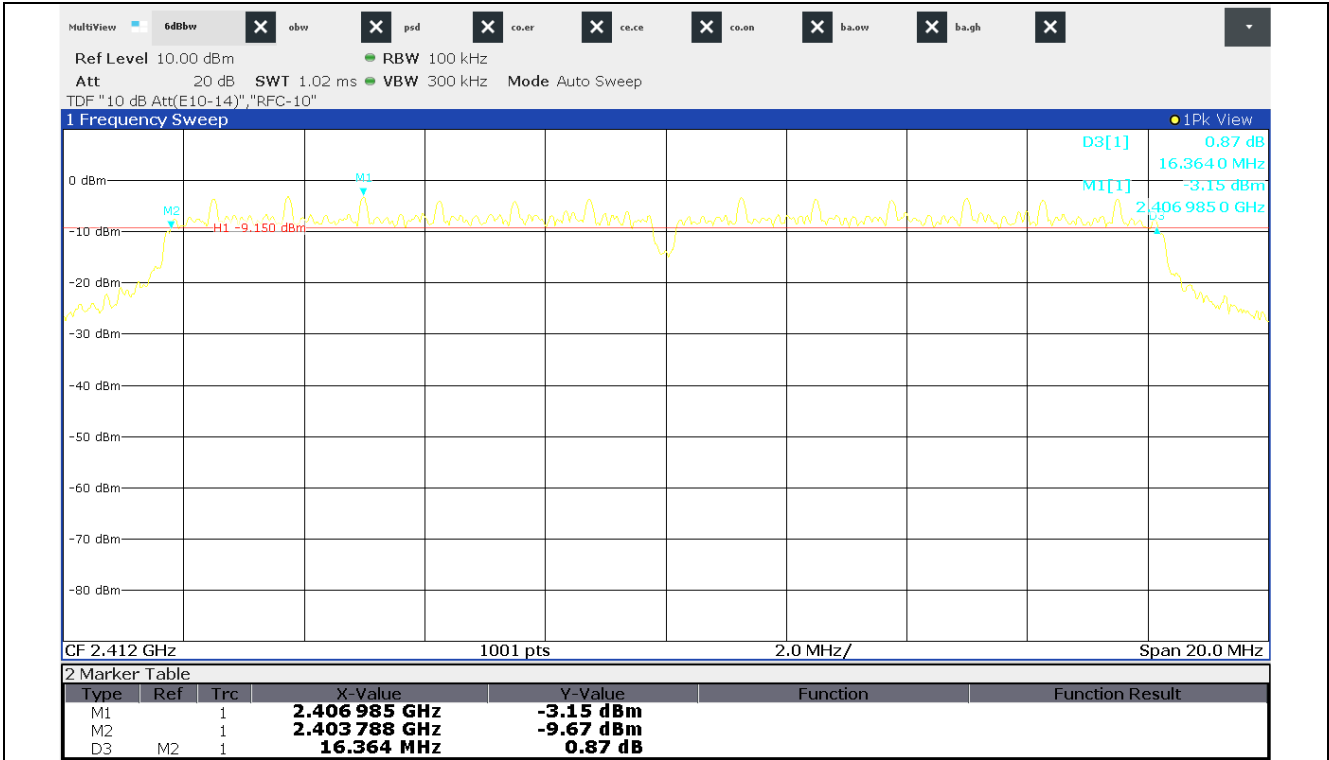
Mid CH



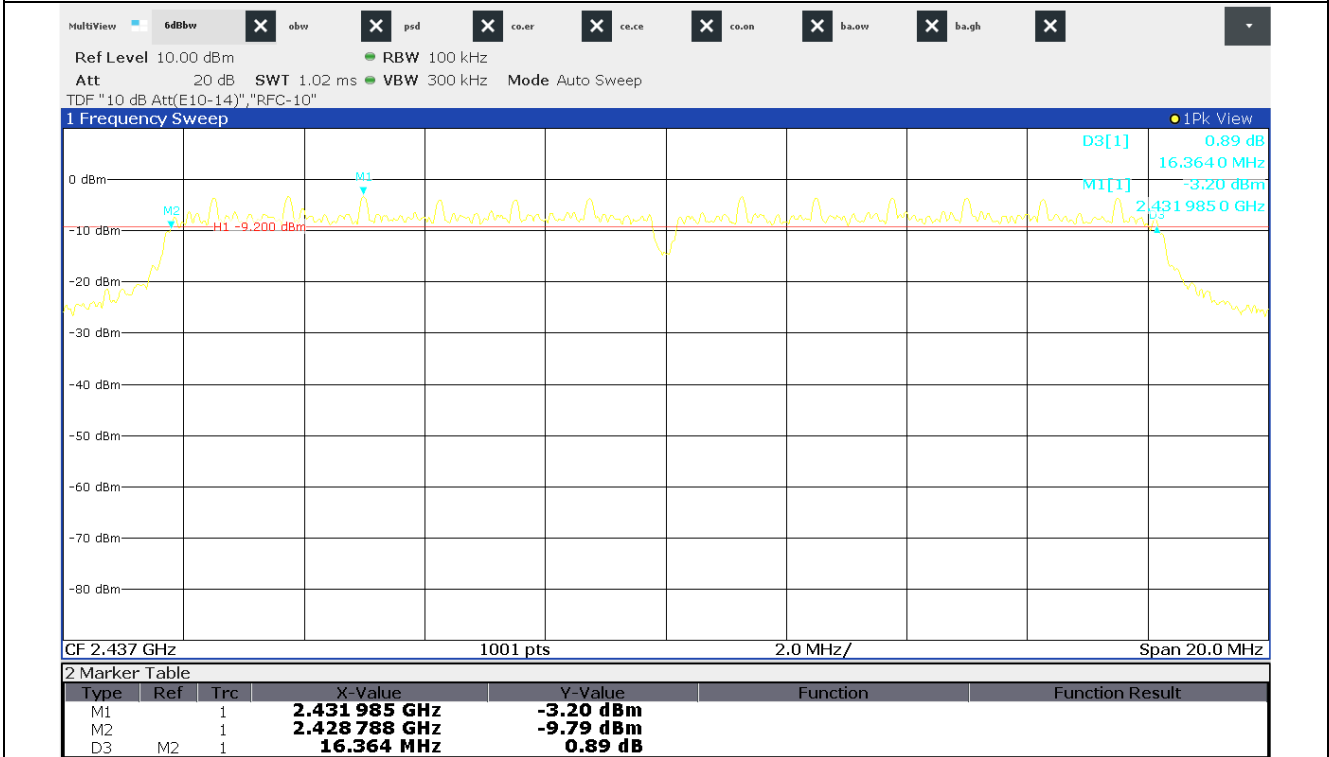
High CH



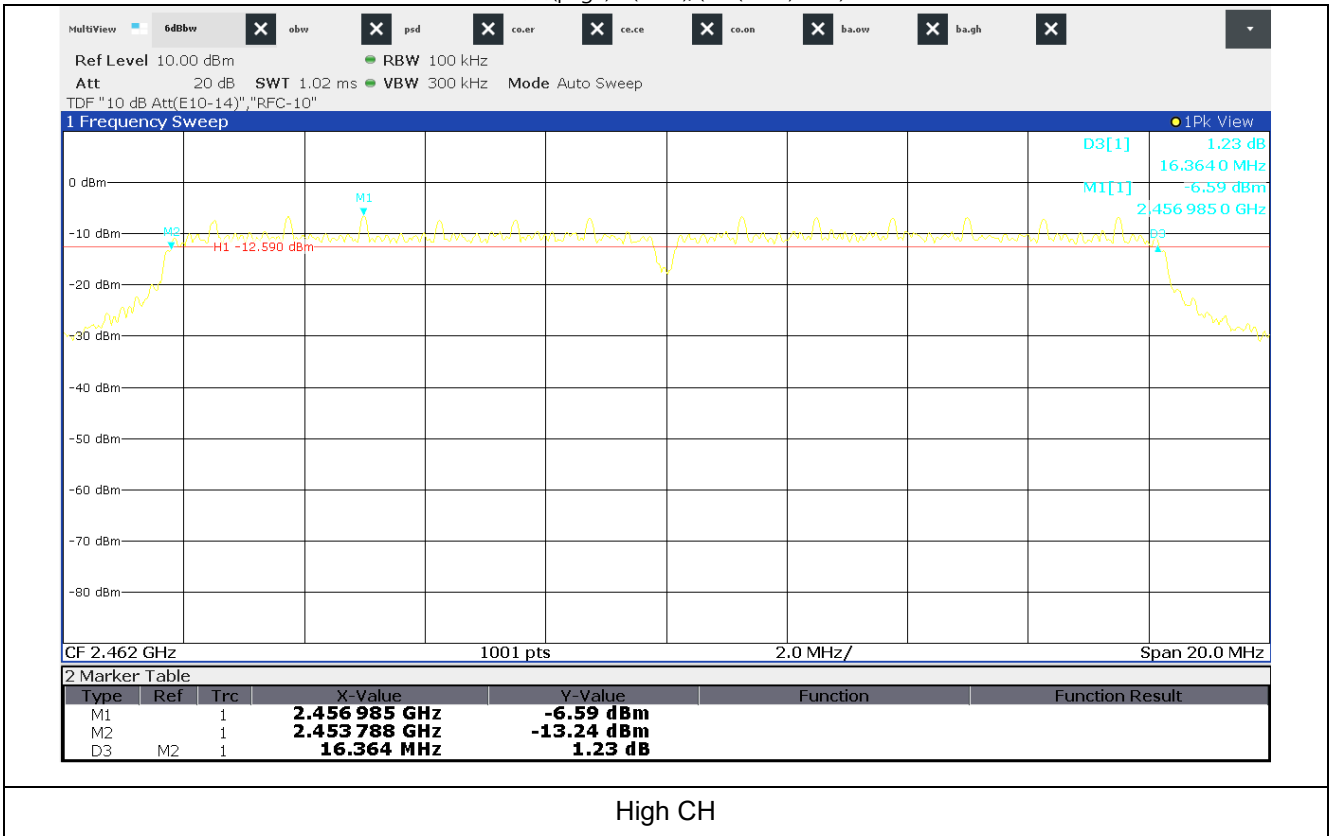
### 5.4.3 Measured Graph for 802.11g



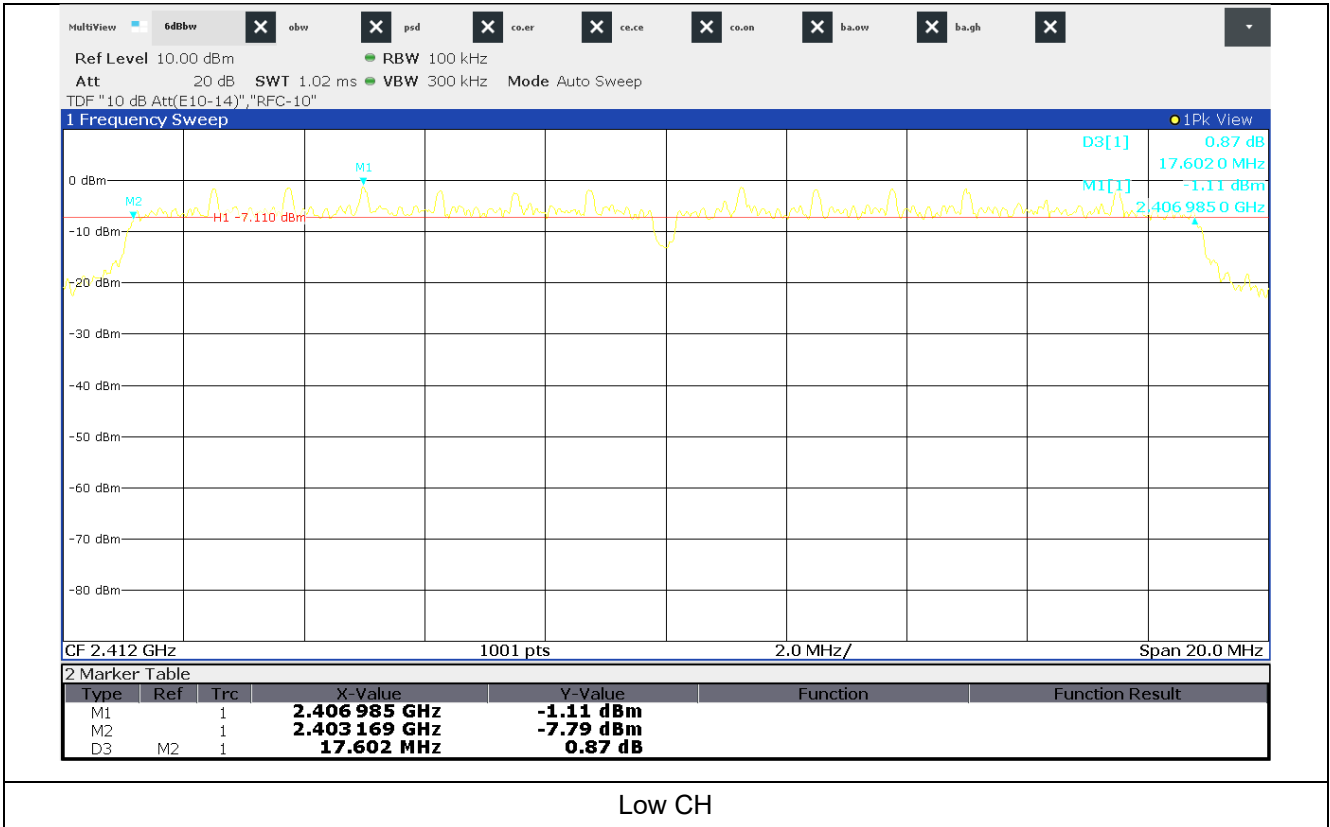
#### Low CH

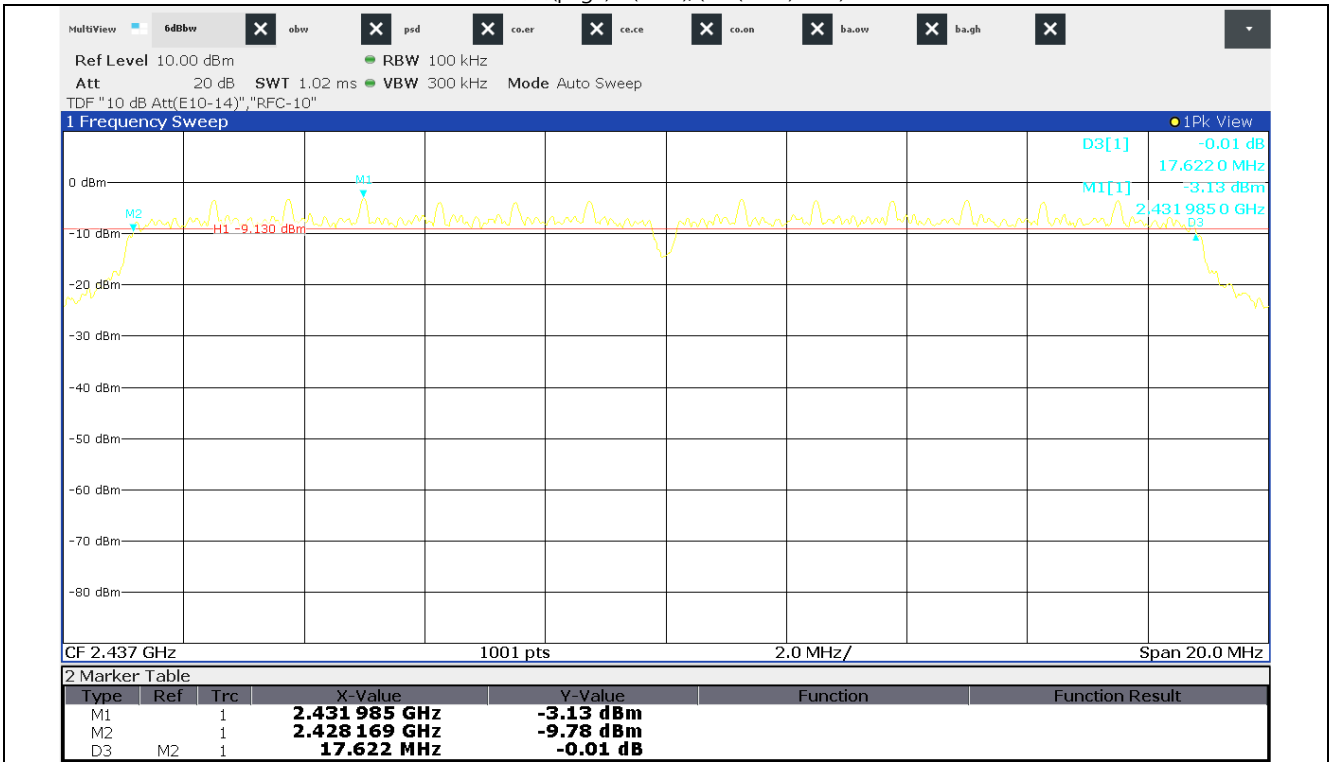


#### Mid CH

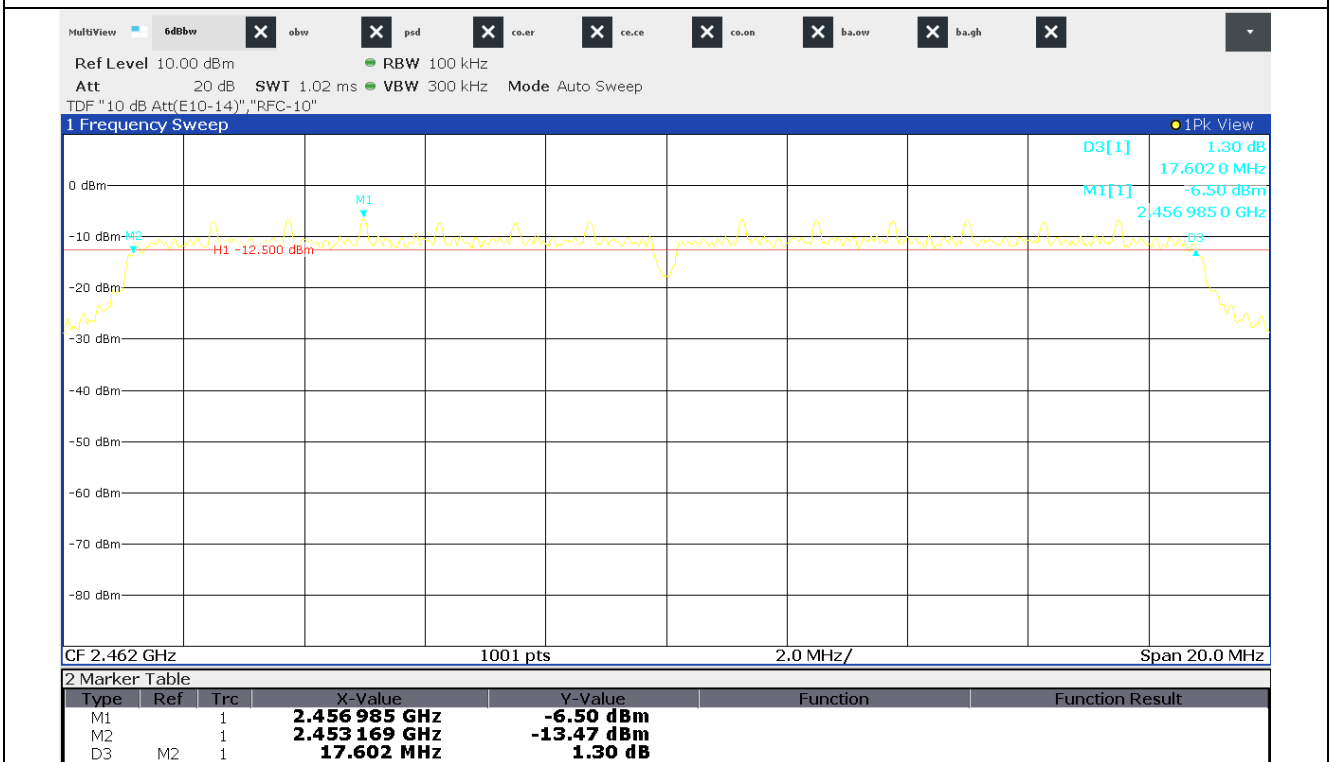


### 5.4.4 Measured Graph for 802.11n(HT20)





Mid CH



High CH



## 6. Maximum Conducted (Average) Output Power

### 6.1 Operating environment

Temperature : 25 °C  
Relative humidity : 46 %

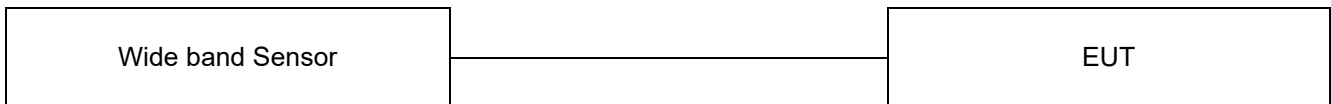
### 6.2 Measurement method

Standard : §15.247 (b) (3)

### 6.3 Test setup

The maximum peak output power was measured with the wide band sensor connected to the antenna output power of the EUT. The Wide Band Sensor is measured when the EUT is transmitting at the appropriate center frequency its maximum power control level as described in Section 8.3(558074 D01 15.247 Meas Guidance v05r02).

Since this measurement is made only during the ON time of the transmitter, no duty cycle correction is required.





### 6.4 Test data

Test date : 03. May. 2021  
Operating mode : Transmit mode  
Test Result : Pass

#### 6.4.1 Measured Results

Modulation Type	Channel (Frequency)	Measured Value (dBm)	Limit (dBm)
802.11b	0 (2 412 MHz)	5.44	30 (1 Watt)
	6 (2 437 MHz)	3.98	
	11 (2 462 MHz)	-0.38	
802.11g	0 (2 412 MHz)	3.93	
	6 (2 437 MHz)	4.20	
	11 (2 462 MHz)	-2.96	
802.11n(HT20)	0 (2 412 MHz)	5.63	
	6 (2 437 MHz)	4.20	
	11 (2 462 MHz)	-0.10	





## 7. Power Spectral Density

### 7.1 Operating environment

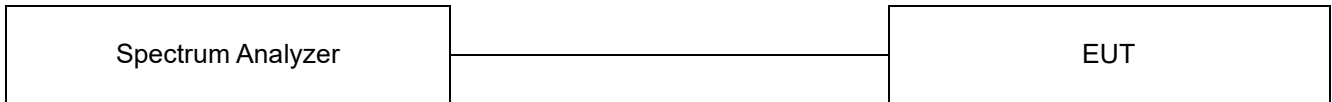
Temperature : 25 °C  
Relative humidity : 46 %

### 7.2 Measurement method

Standard : §15.247 (e)

### 7.3 Test setup

The antenna output of the EUT was connected to the spectrum analyzer. The resolution bandwidth is set to 3 kHz, the video bandwidth is set to 3 times the resolution bandwidth.





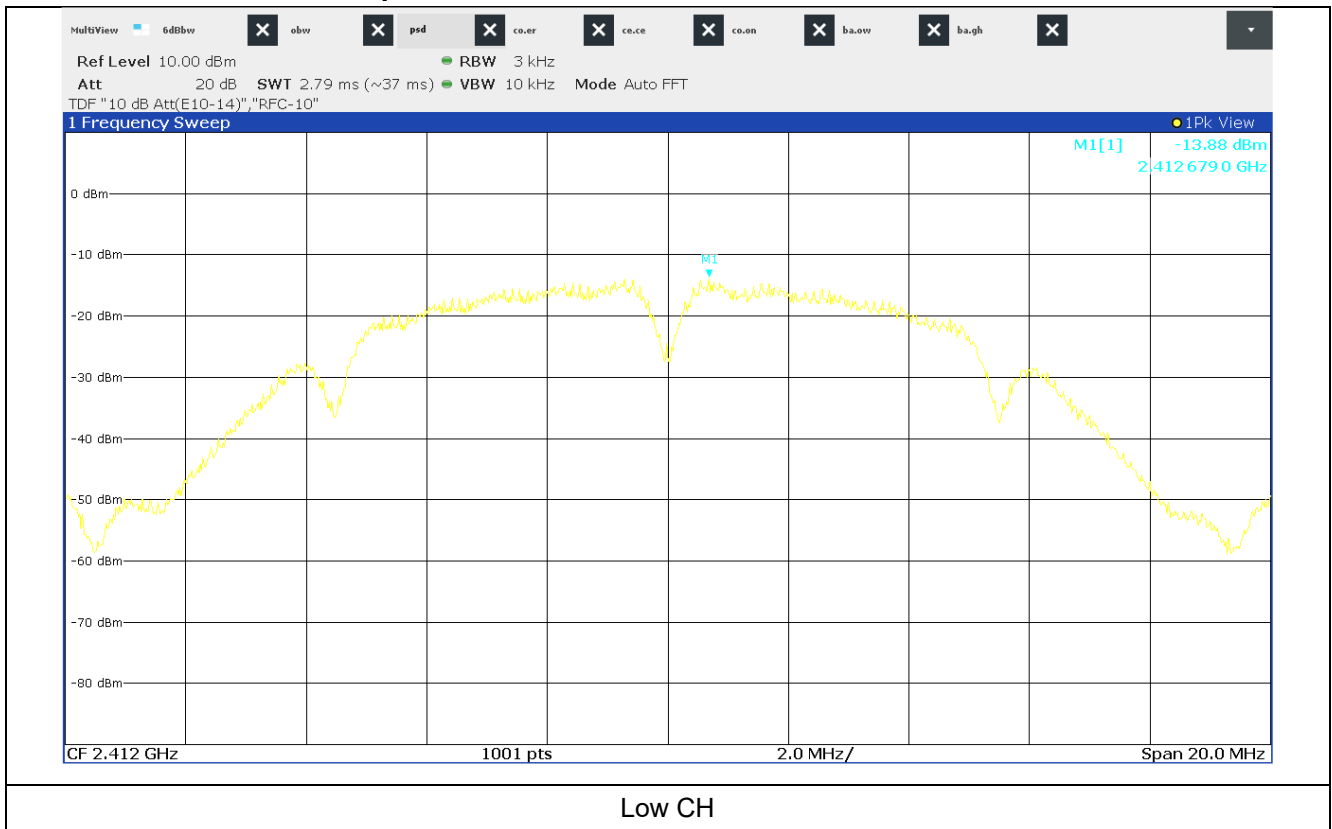
### 7.4 Test data

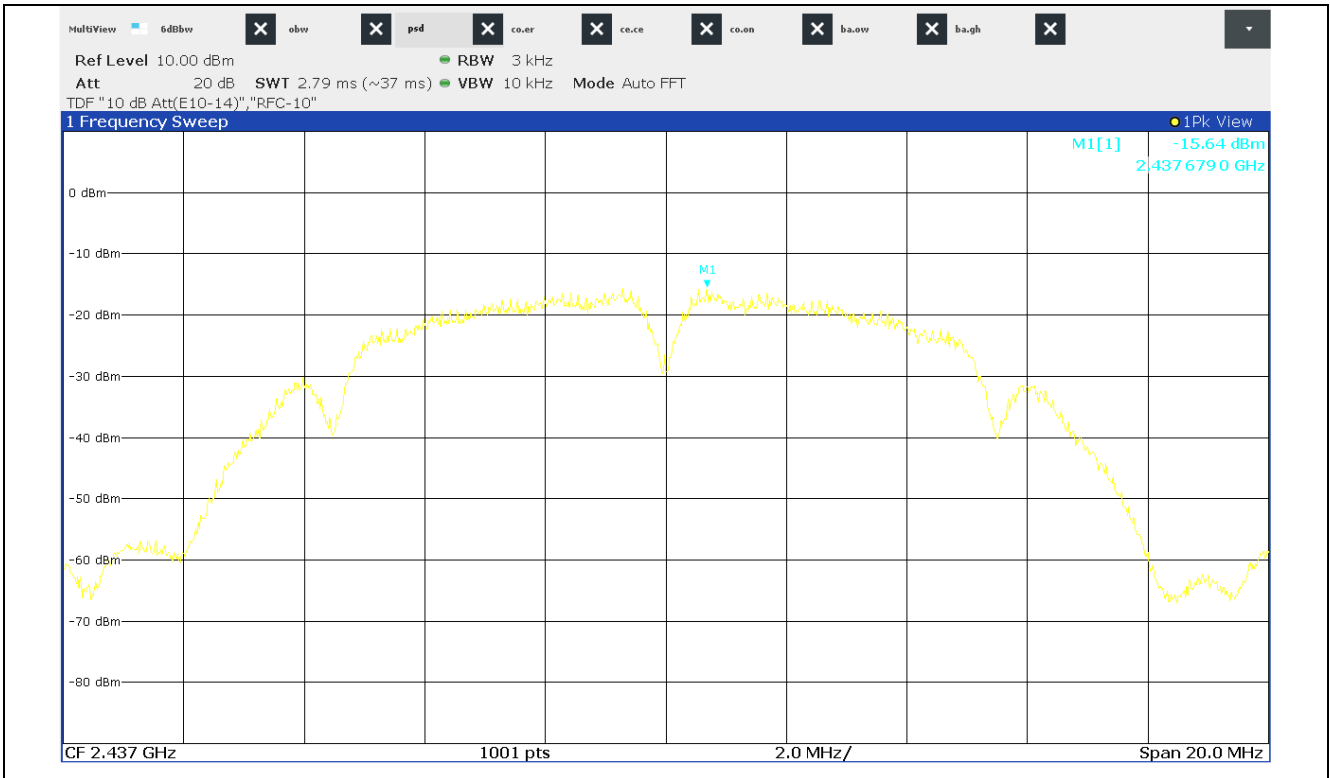
Test date : 03. May. 2021  
 Operating mode : Transmit mode  
 Test Result : Pass

#### 7.4.1 Measured Results

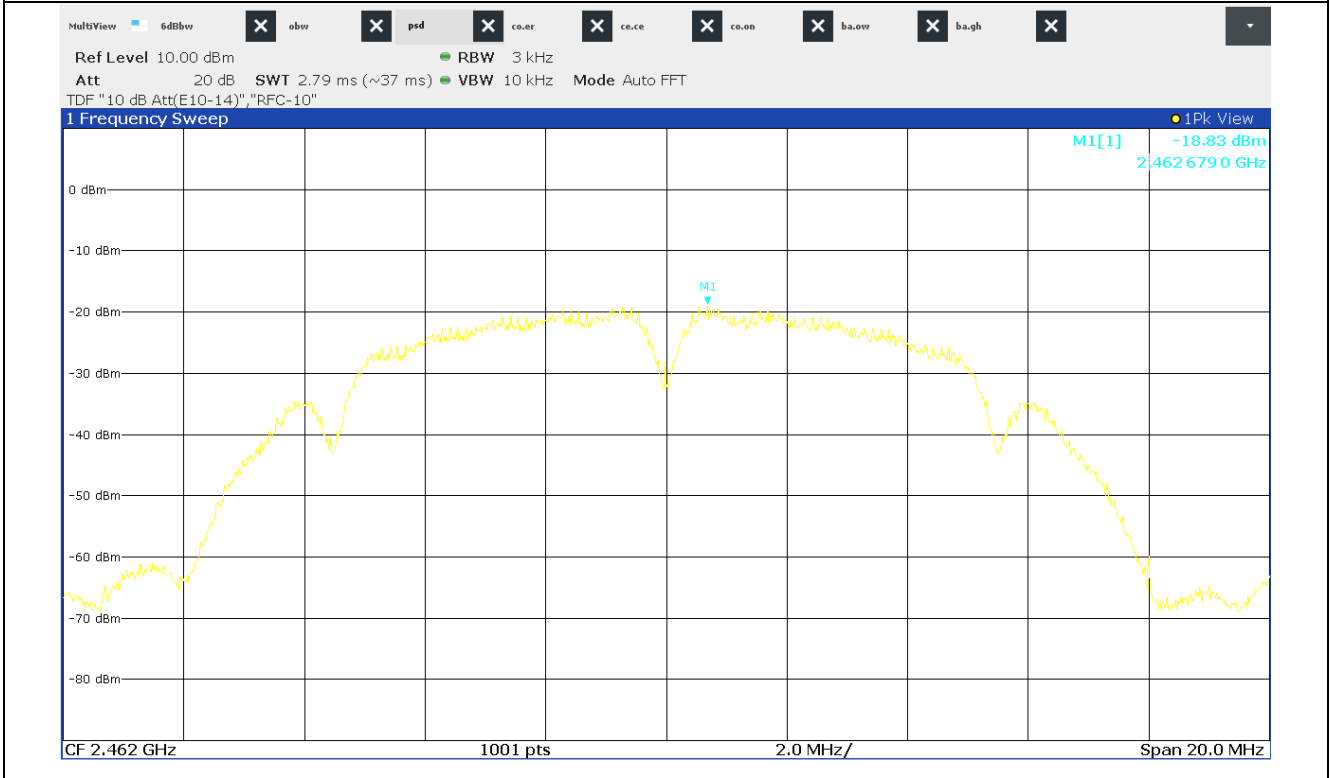
Modulation Type	Channel (Frequency)	Highest signal level (dBm)	Limit (dBm/3kHz)
802.11b	0 (2 412 MHz)	-13.88	8
	6 (2 437 MHz)	-15.64	
	11 (2 462 MHz)	-18.83	
802.11g	0 (2 412 MHz)	-17.63	
	6 (2 437 MHz)	-17.40	
	11 (2 462 MHz)	-21.07	
802.11n(HT20)	0 (2 412 MHz)	-16.21	
	6 (2 437 MHz)	-17.52	
	11 (2 462 MHz)	-20.86	

#### 7.4.2 Measured Graph for 802.11b





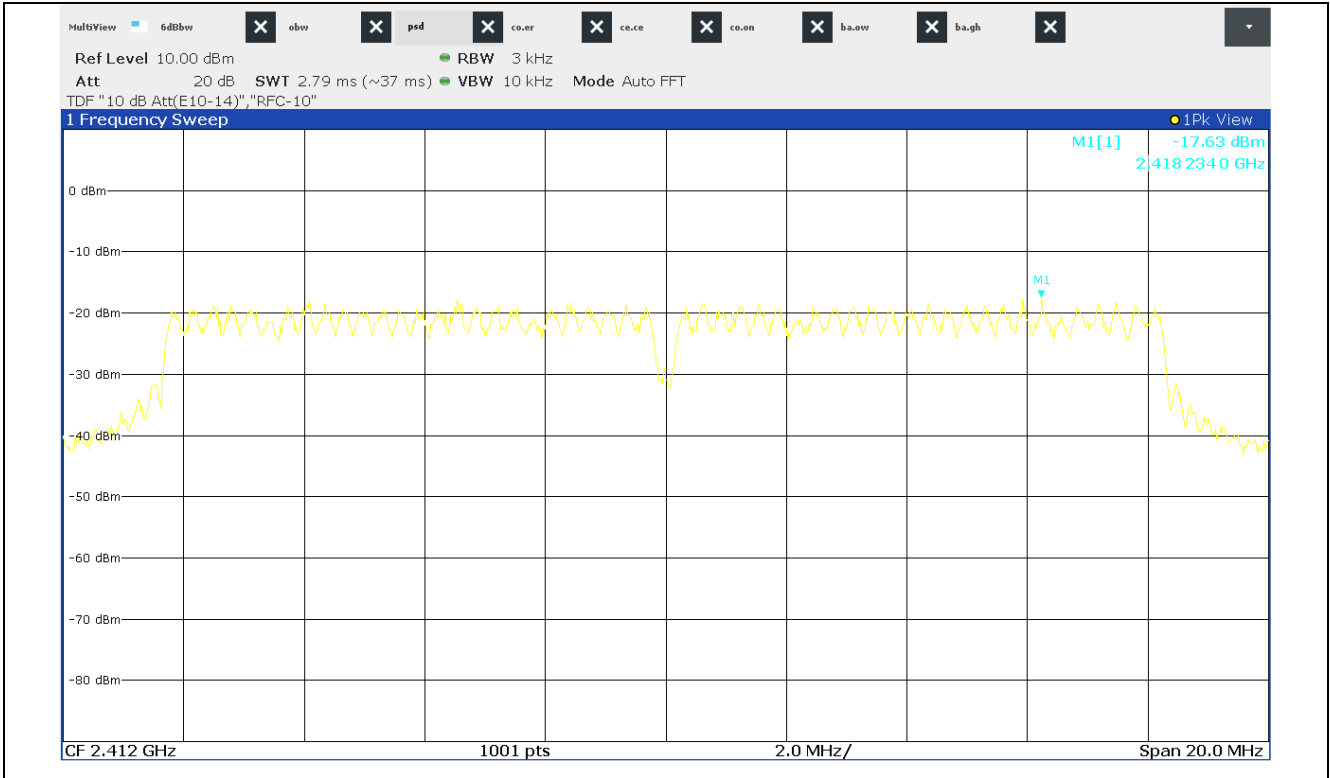
Mid CH



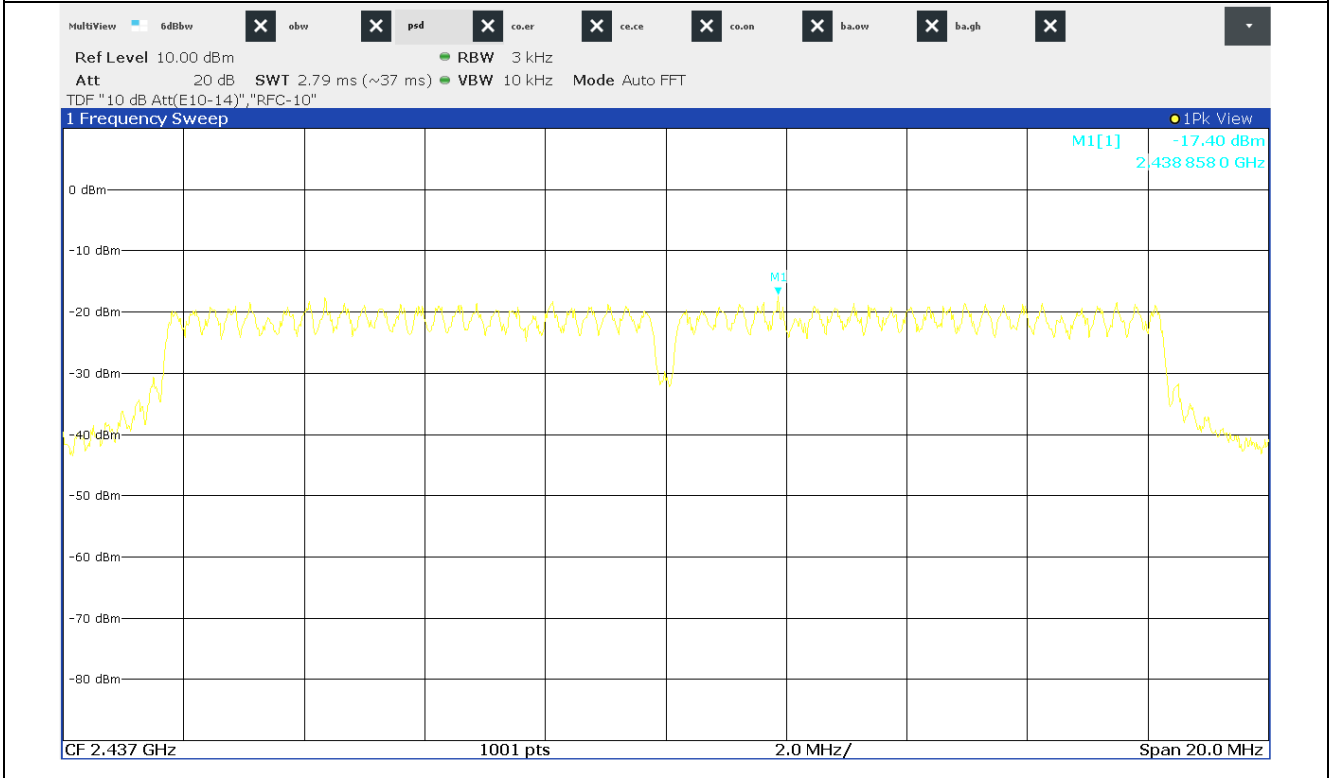
High CH



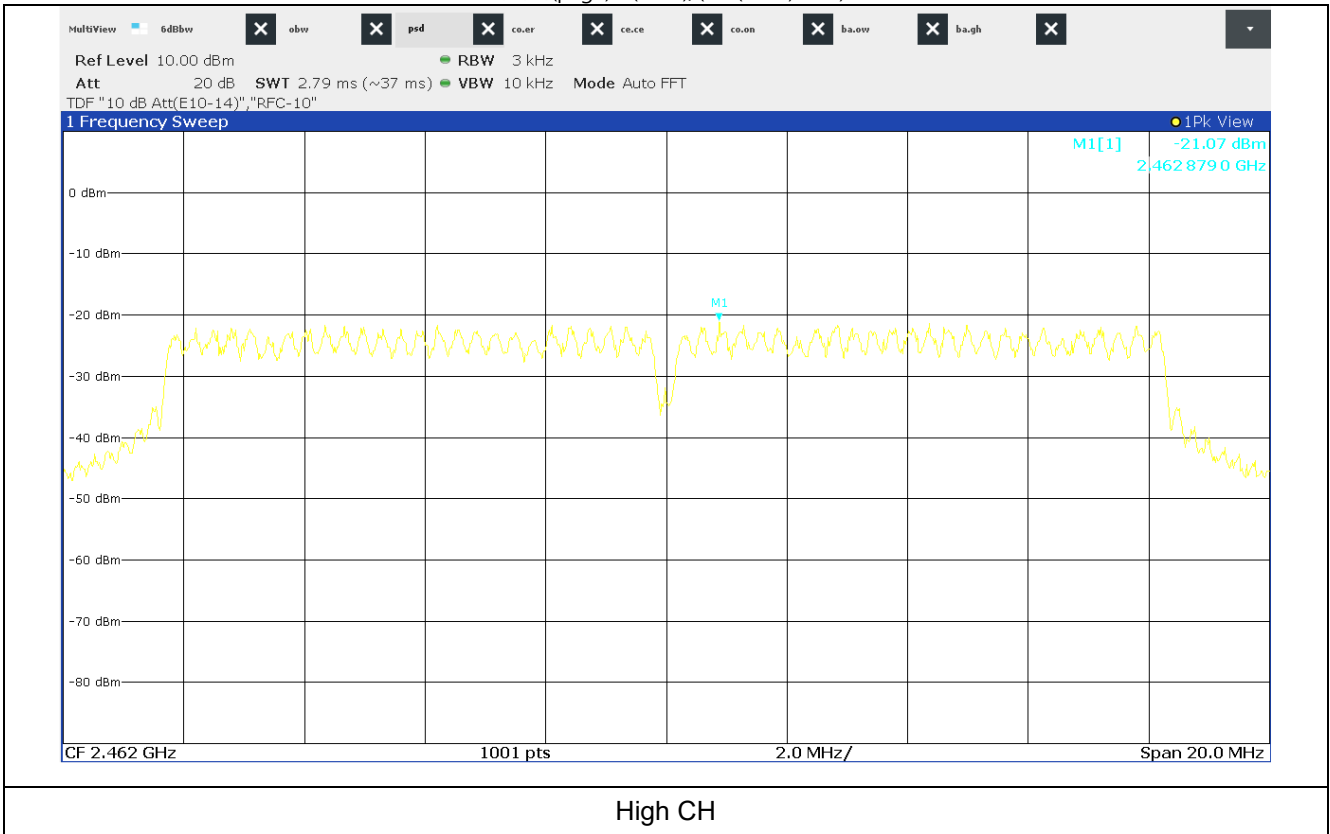
### 7.4.3 Measured Graph for 802.11g



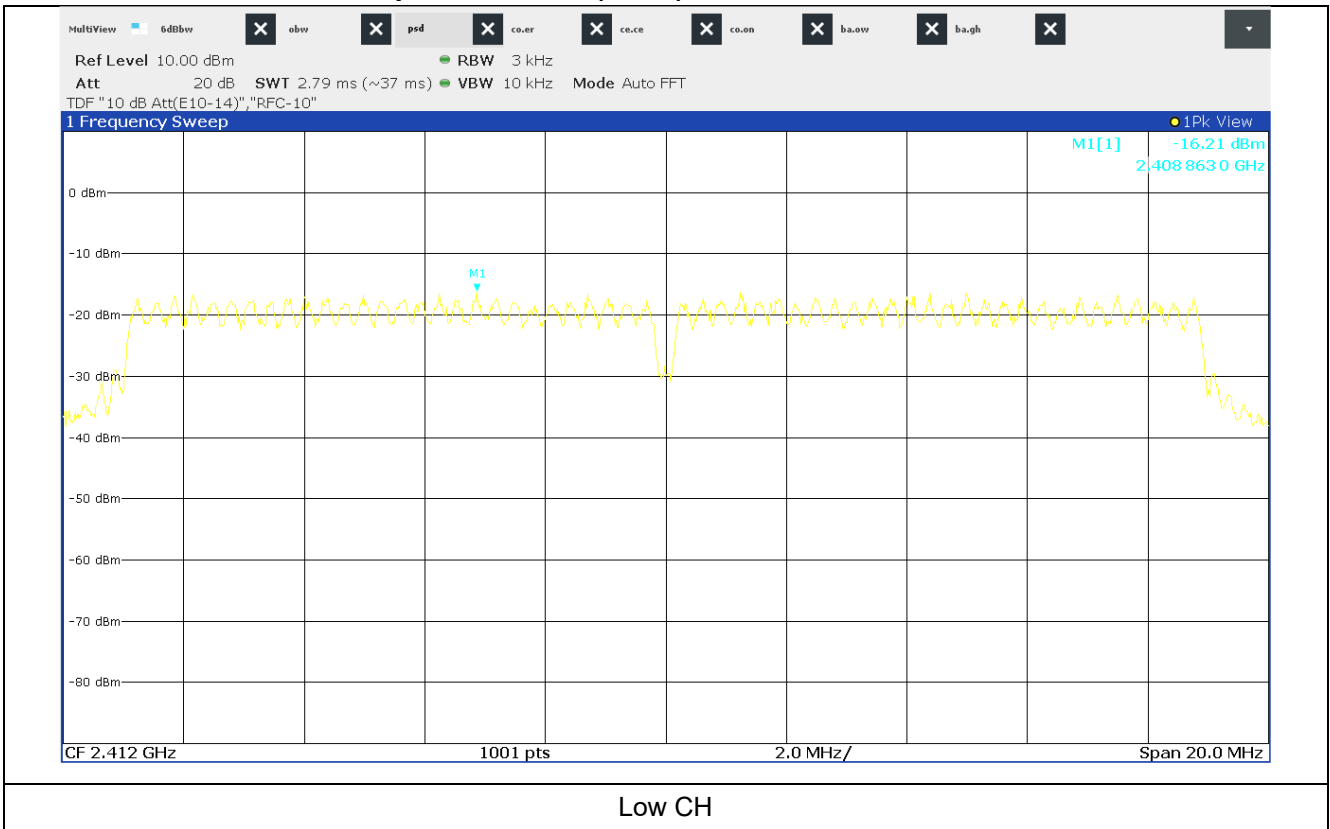
Low CH

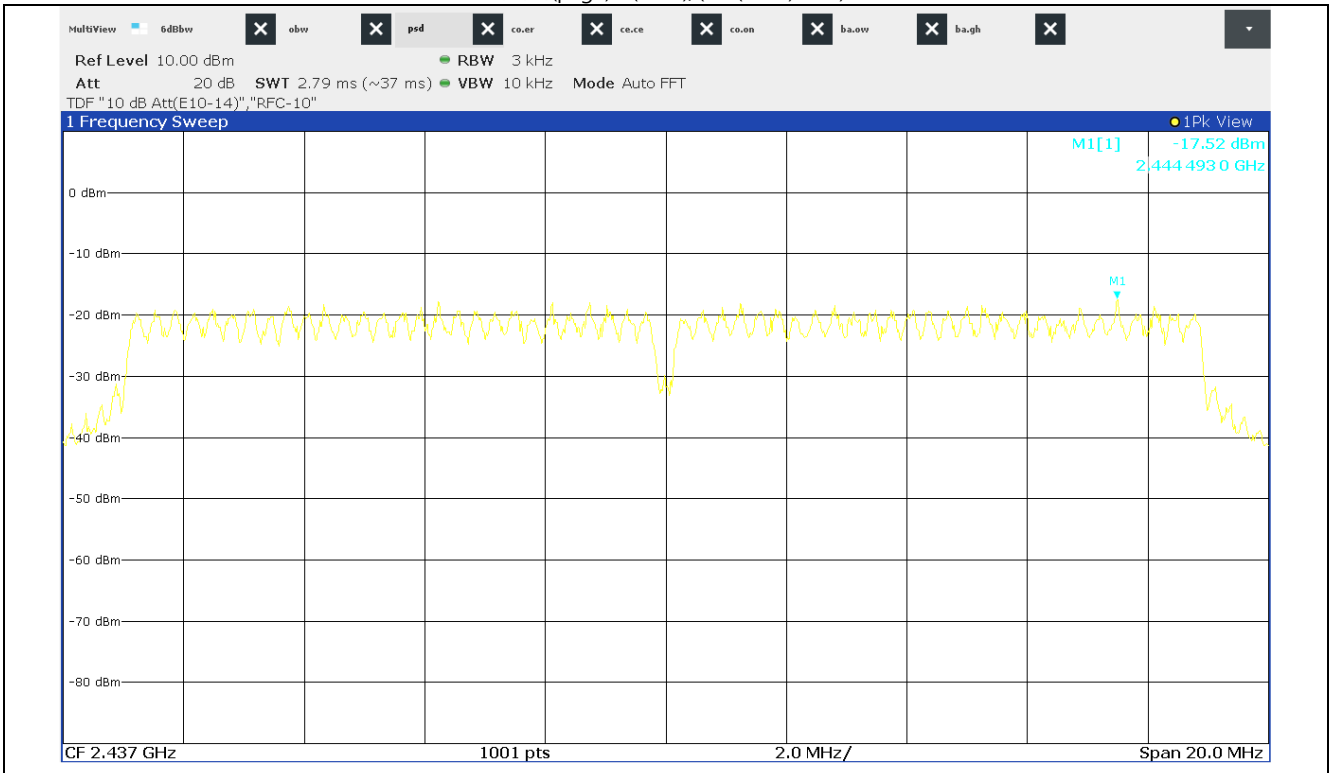


Mid CH

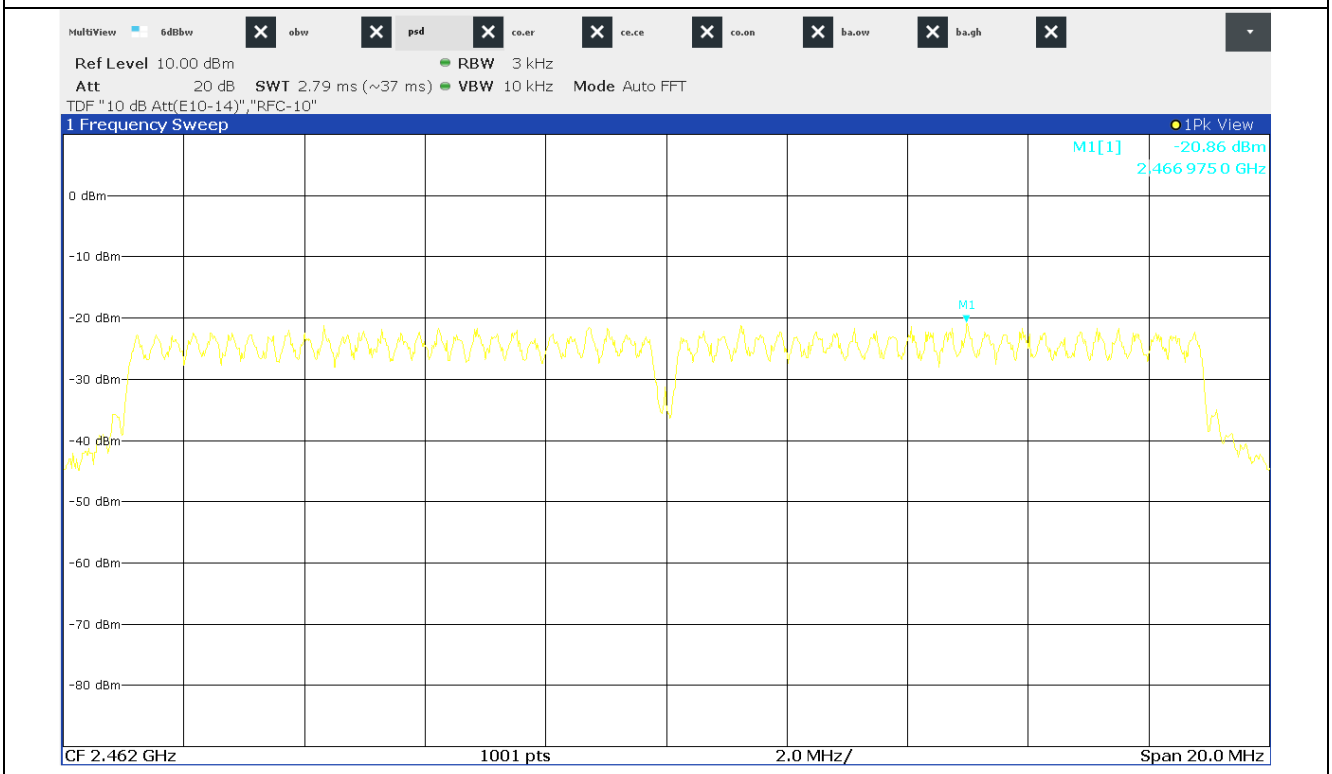


#### 7.4.4 Measured Graph for 802.11n(HT20)





Mid CH



High CH



## 8. Conducted Spurious Emission

### 8.1 Operating environment

Temperature : 25 °C

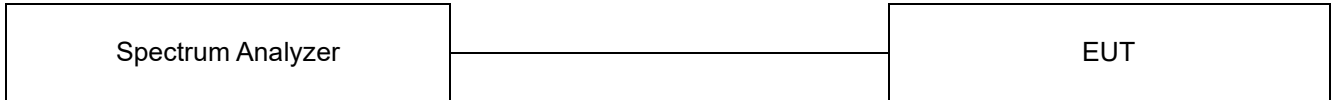
Relative humidity : 46 %

### 8.2 Measurement method

Standard : §15.247 (d)

### 8.3 Test setup

The antenna output of the EUT was connected to the spectrum analyzer. The resolution and video bandwidth is set to 100 kHz, and peak detection was used.



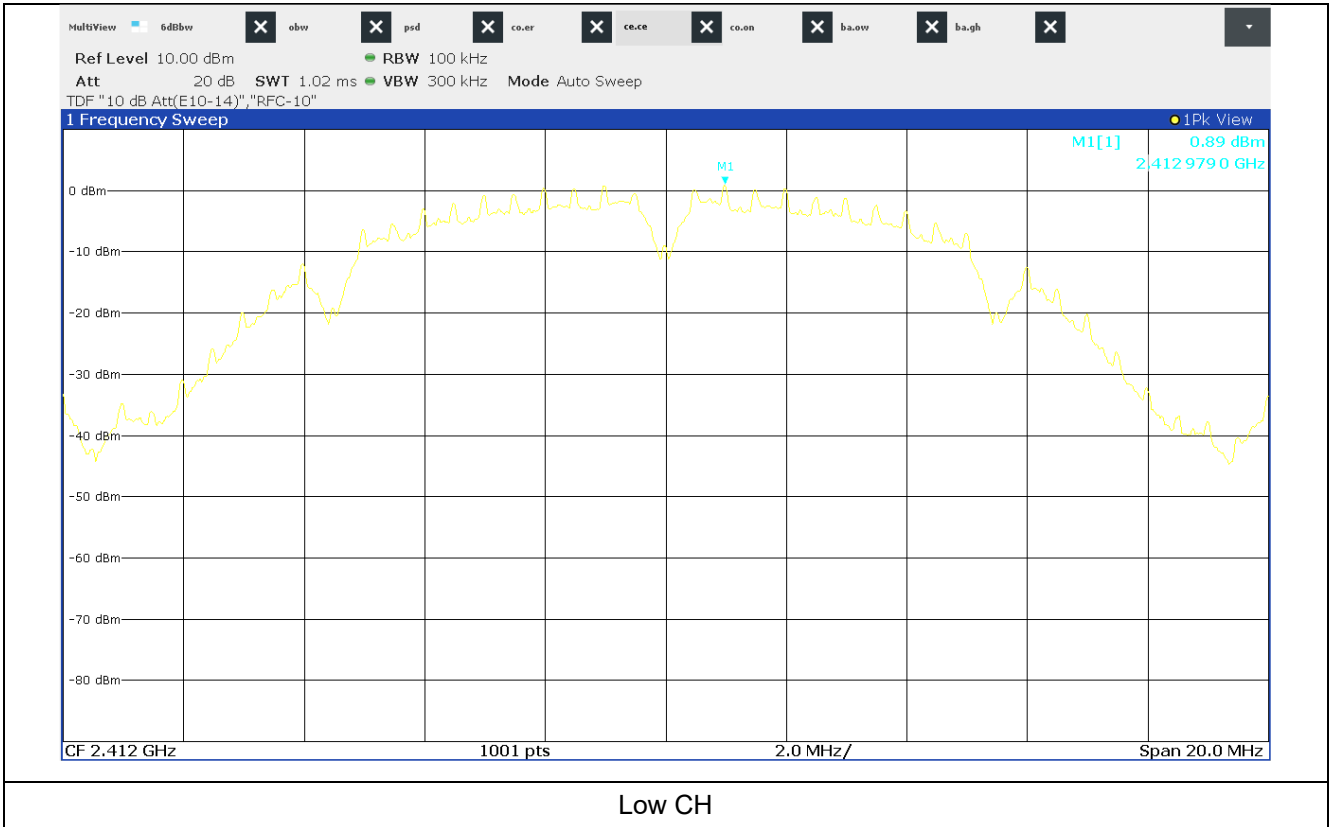


### 8.4 Test data

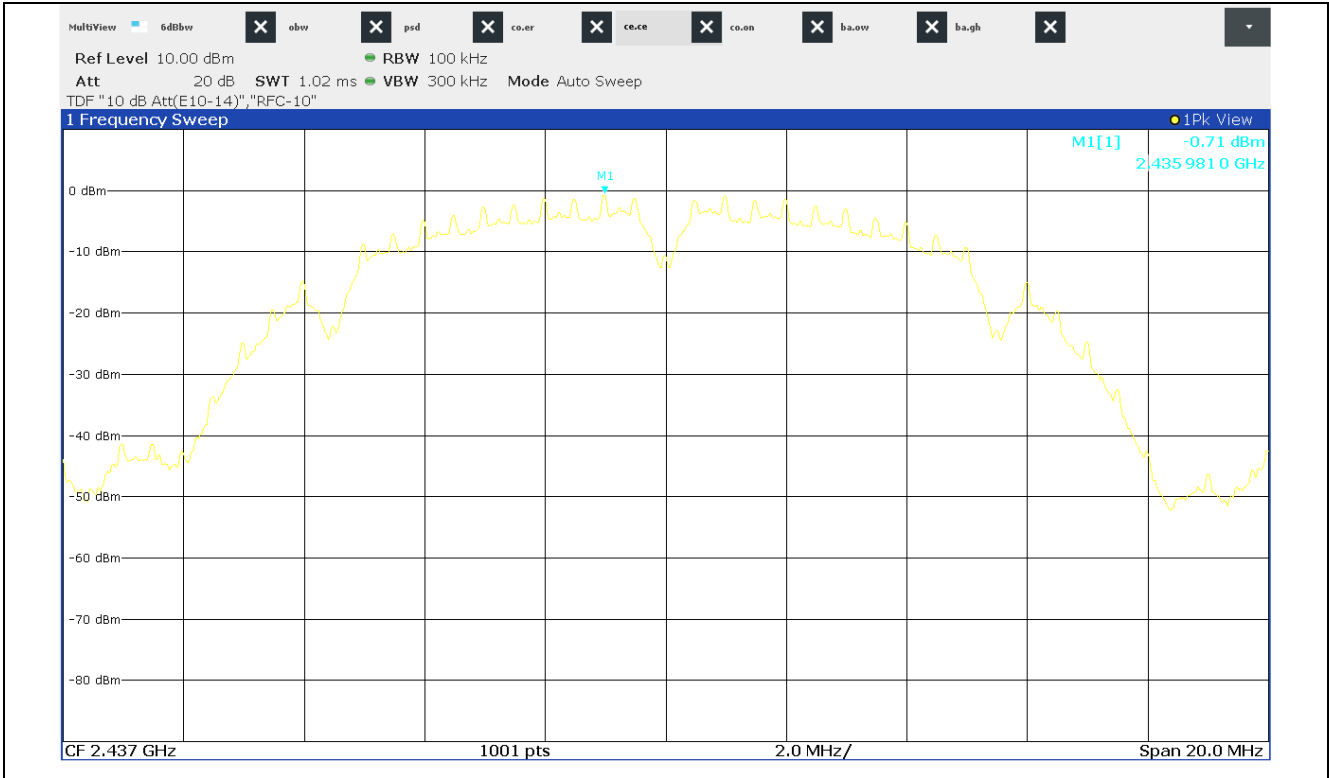
Test date : 03. May. 2021  
Operating mode : Transmit mode  
Test Result : Pass

#### 8.4.1 Measured Results

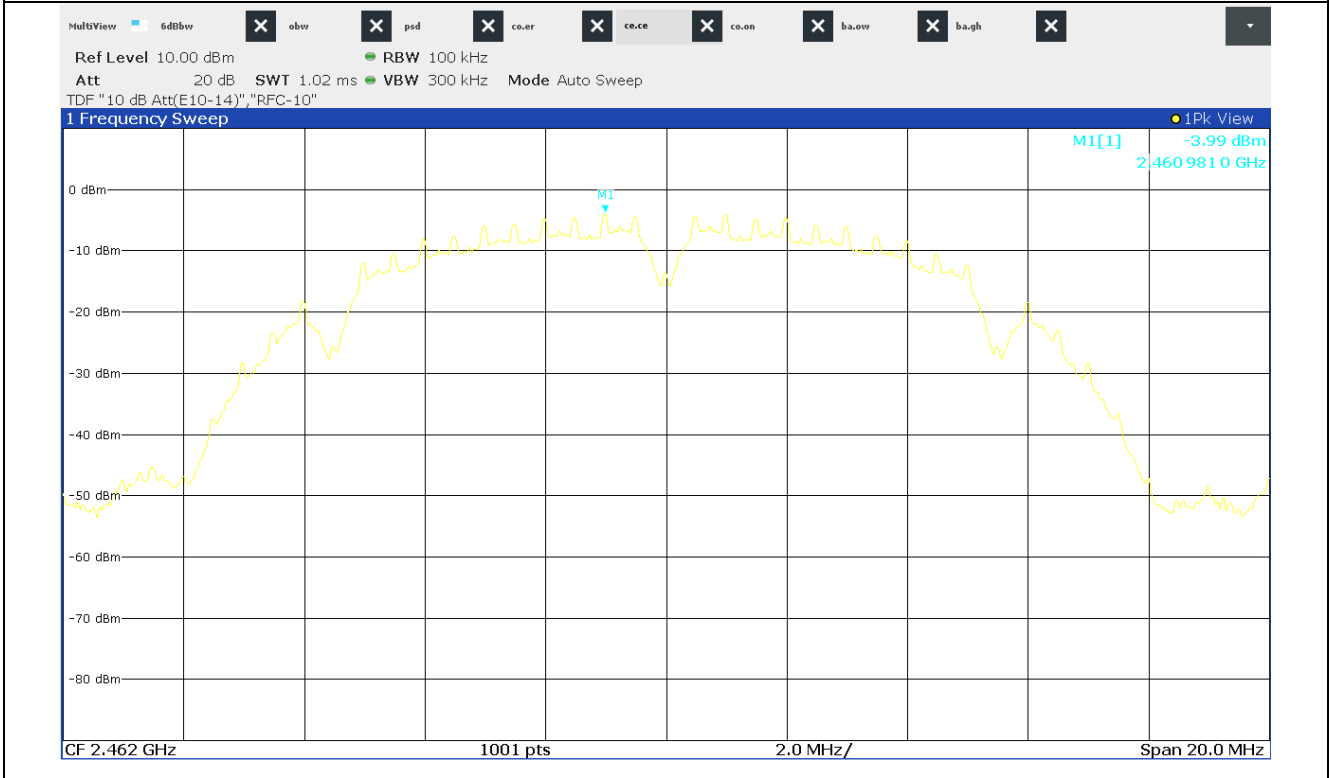
##### 8.4.1.1 Signal level (dB m) for 802.11b







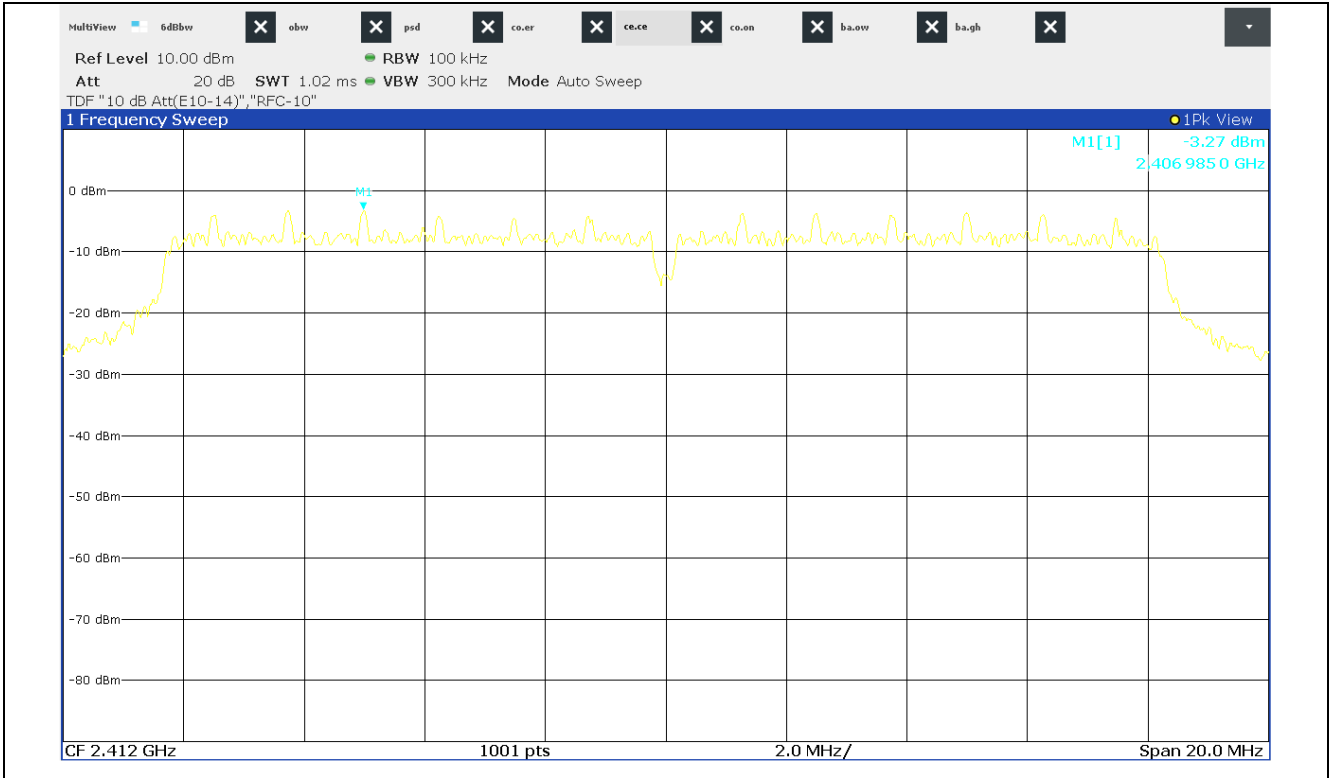
Mid CH



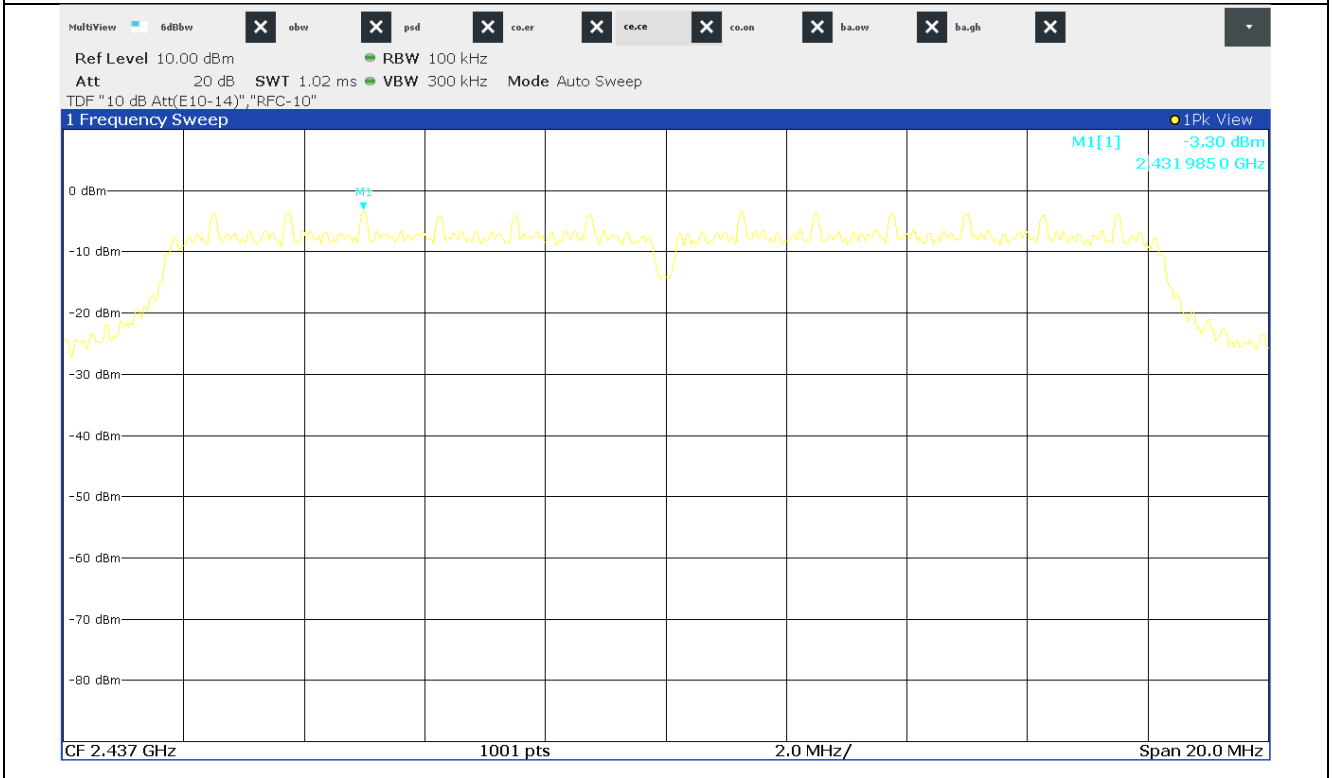
High CH



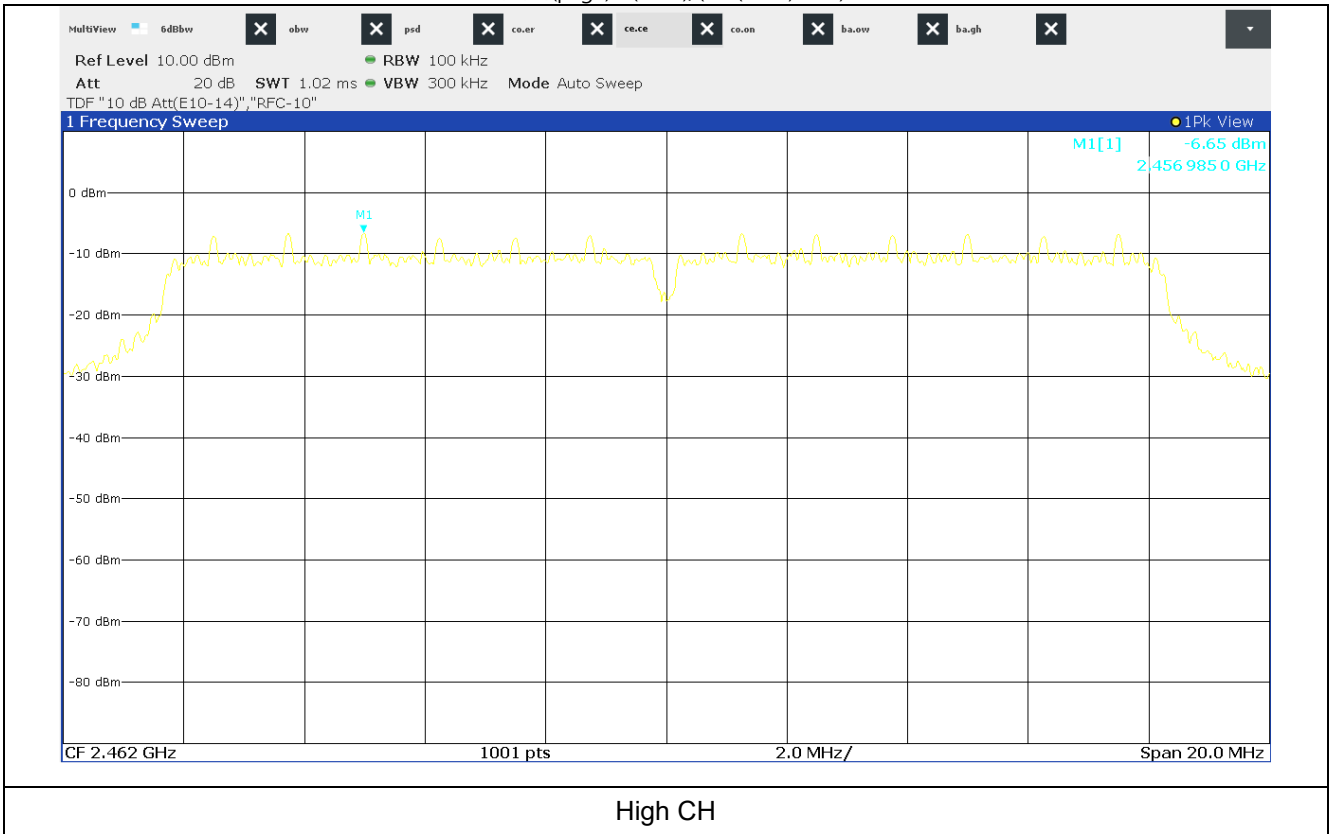
### 8.4.1.2 Signal level (dB m) for 802.11g



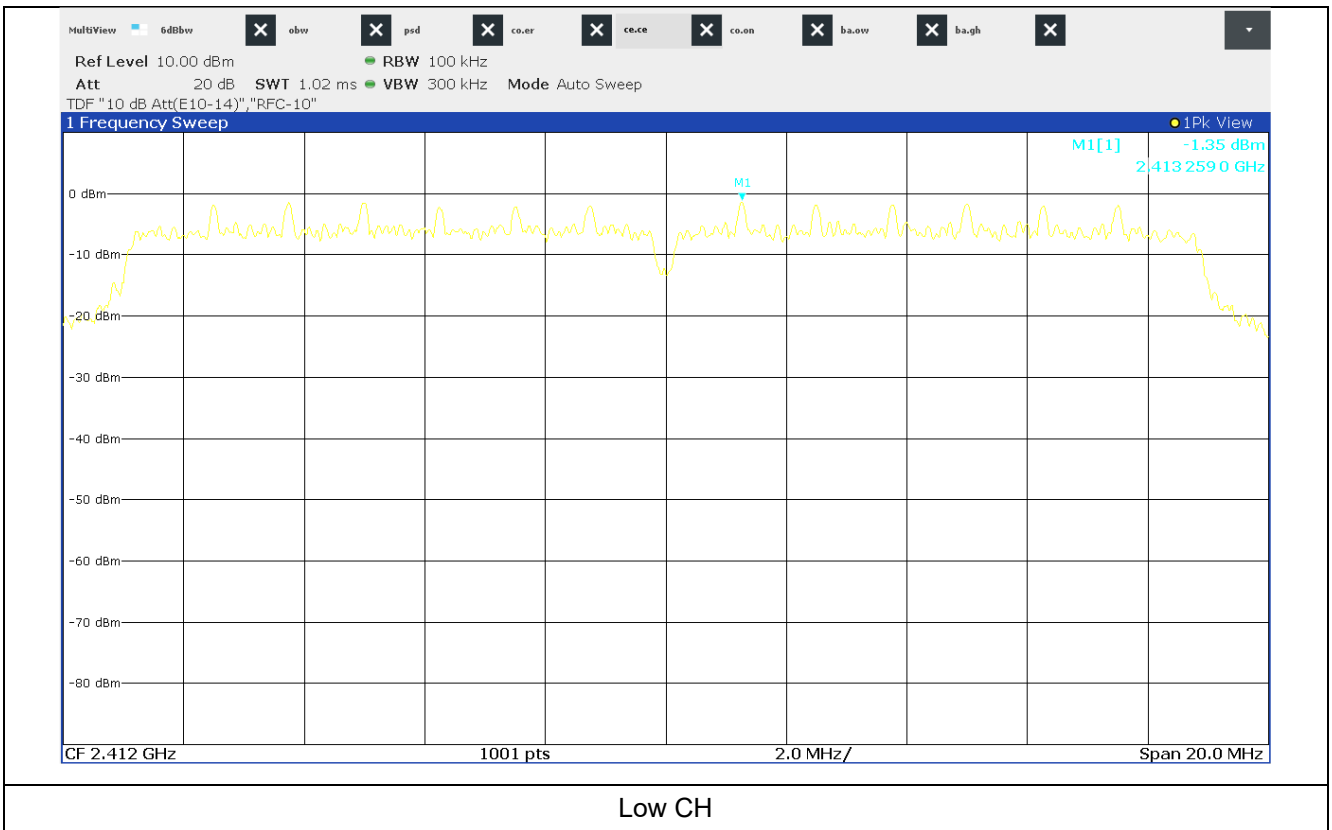
Low CH

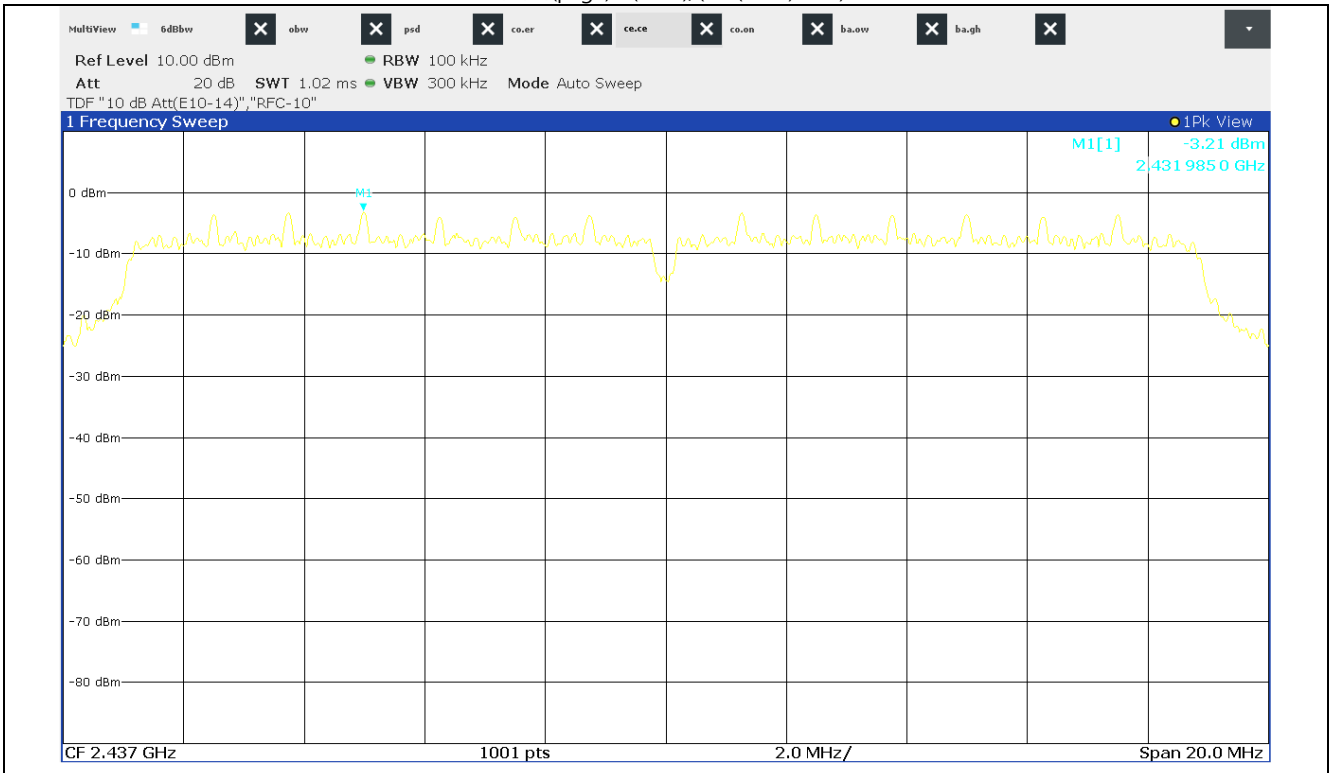


Mid CH

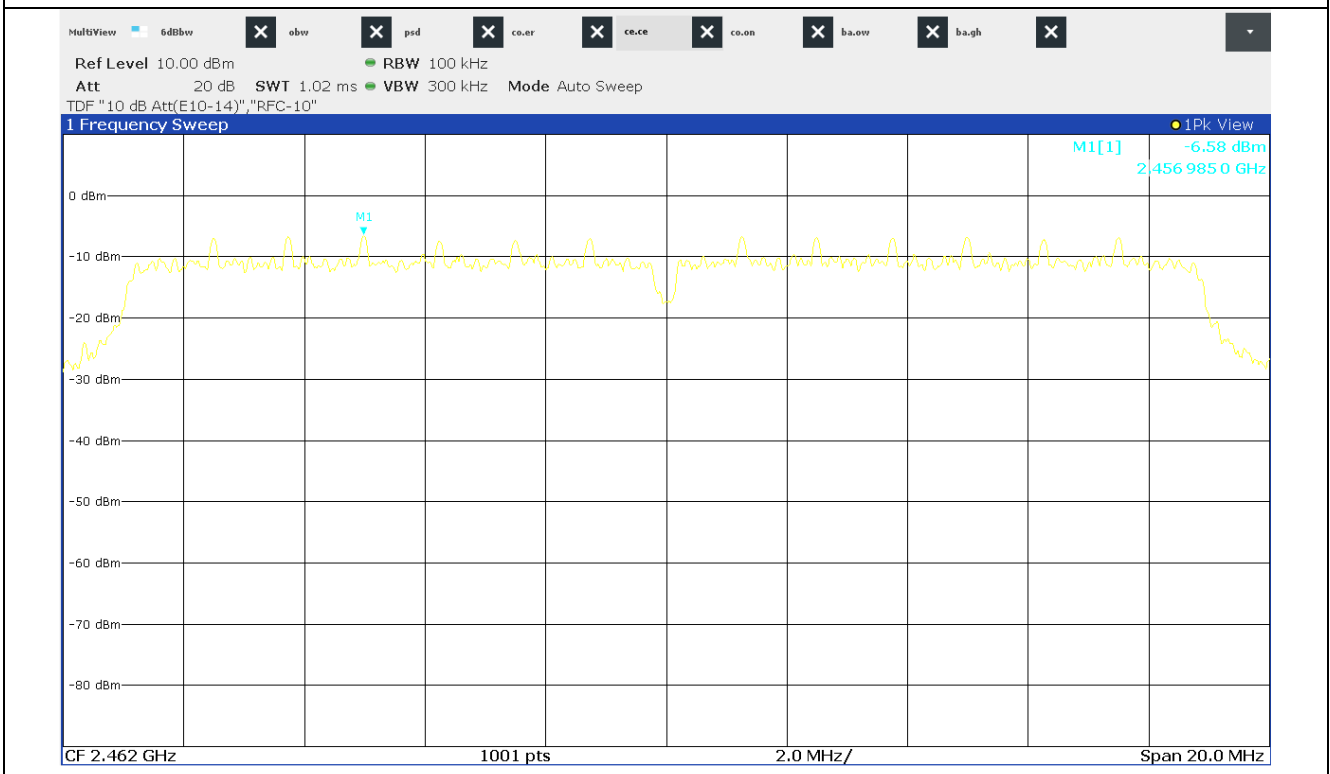


### 8.4.1.3 Signal level (dB m) for 802.11n(HT20)





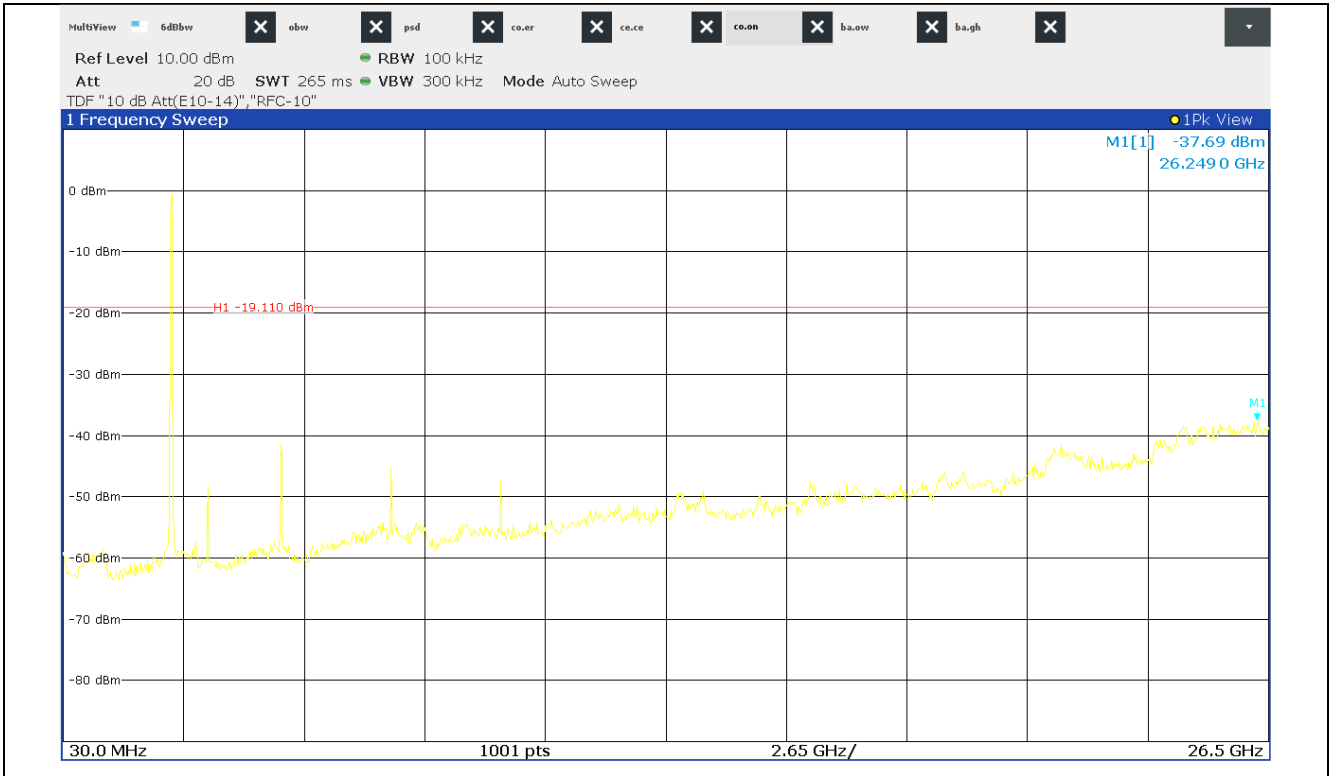
Mid CH



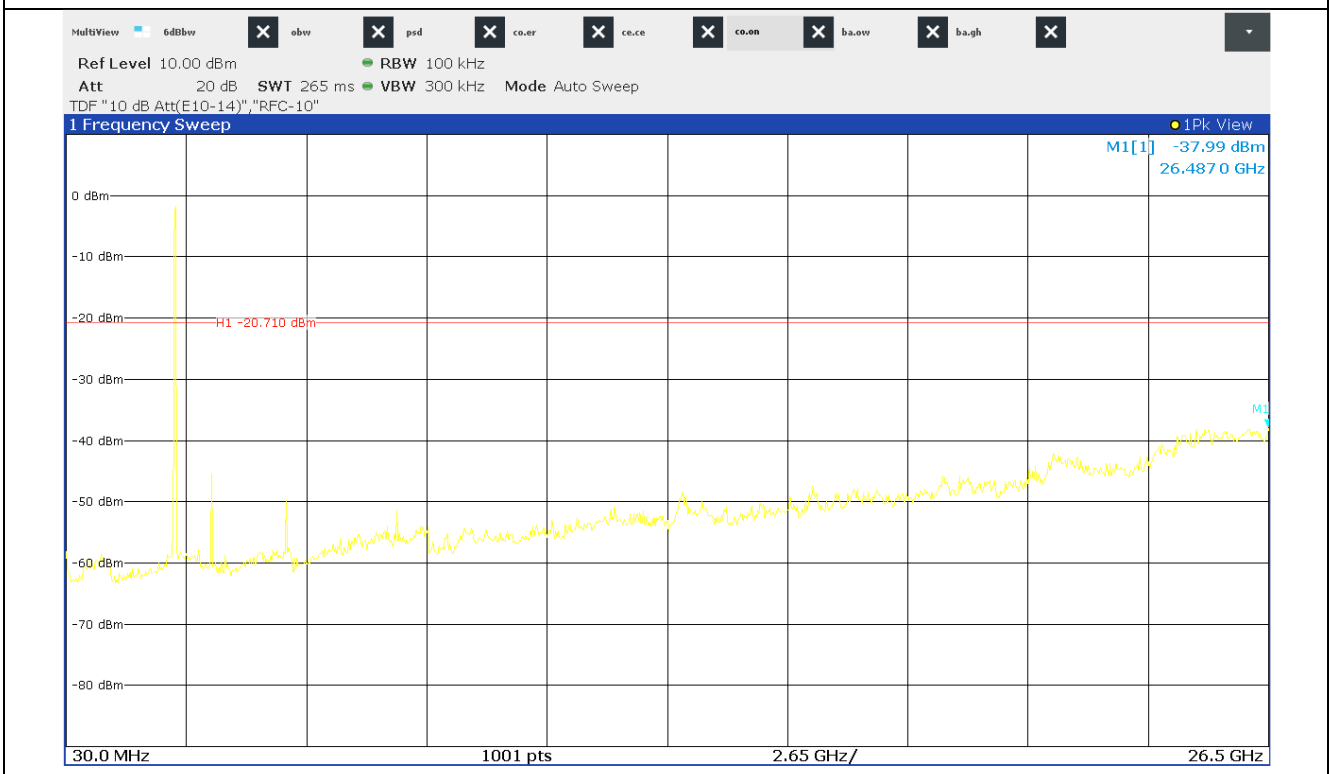
High CH



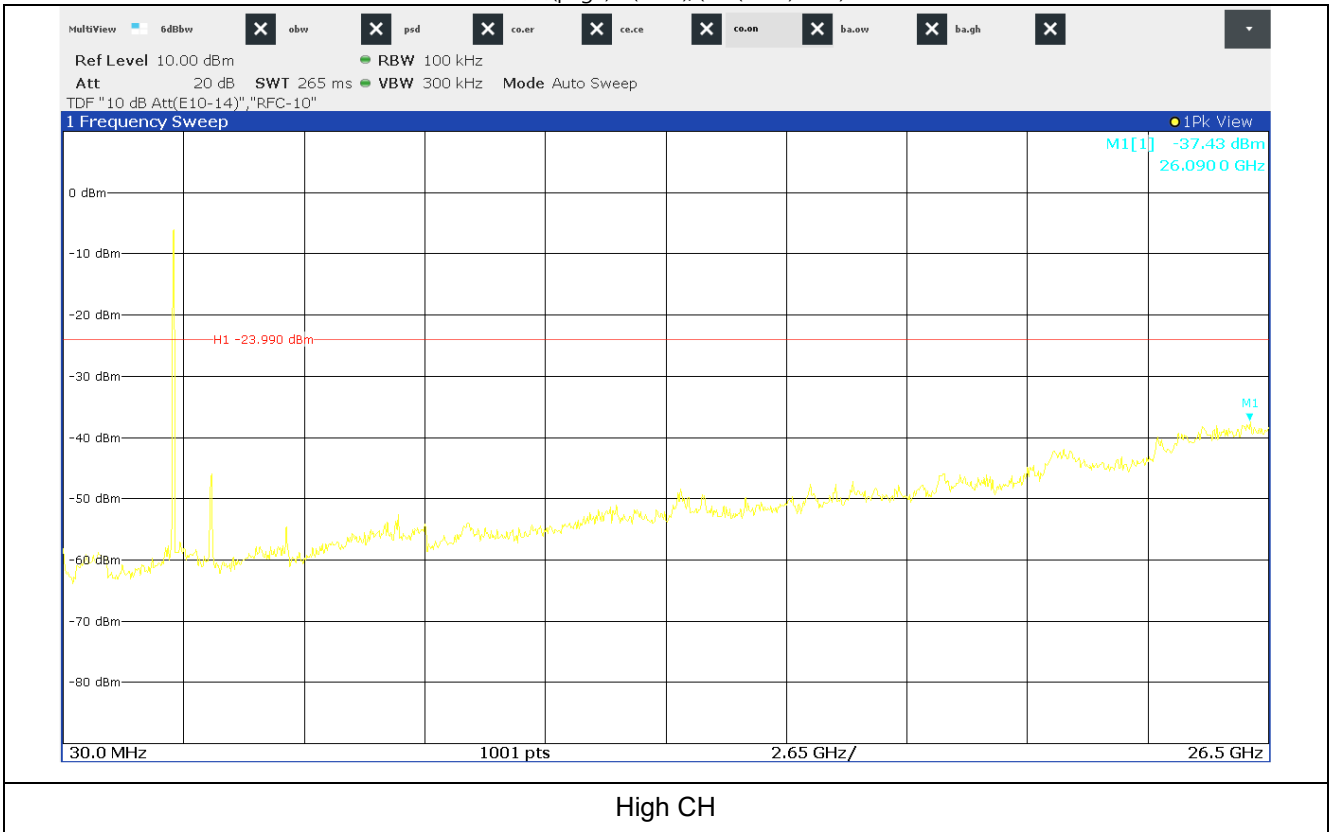
### 8.4.1.4 Unwanted Emissions In Non-Restricted Frequency Bands for 802.11b



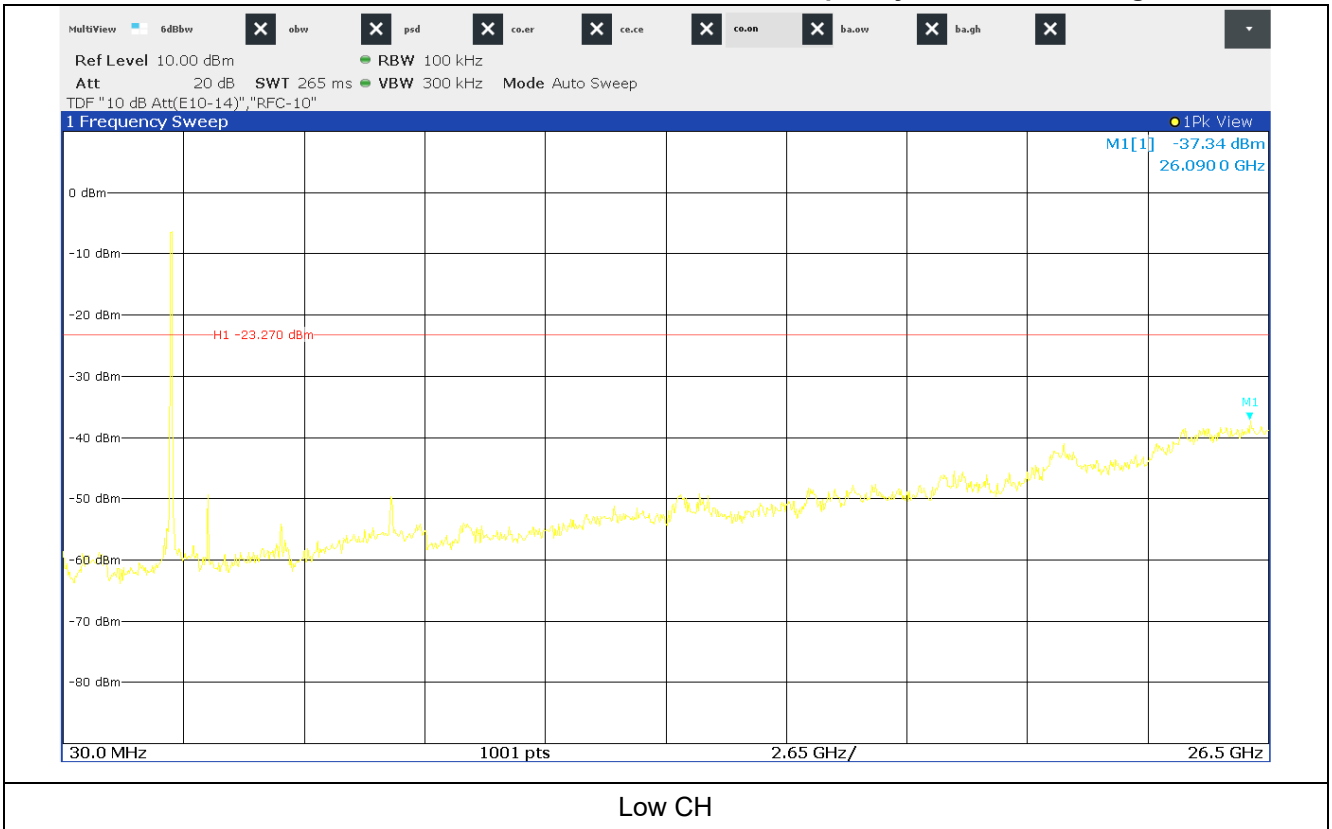
#### Low CH

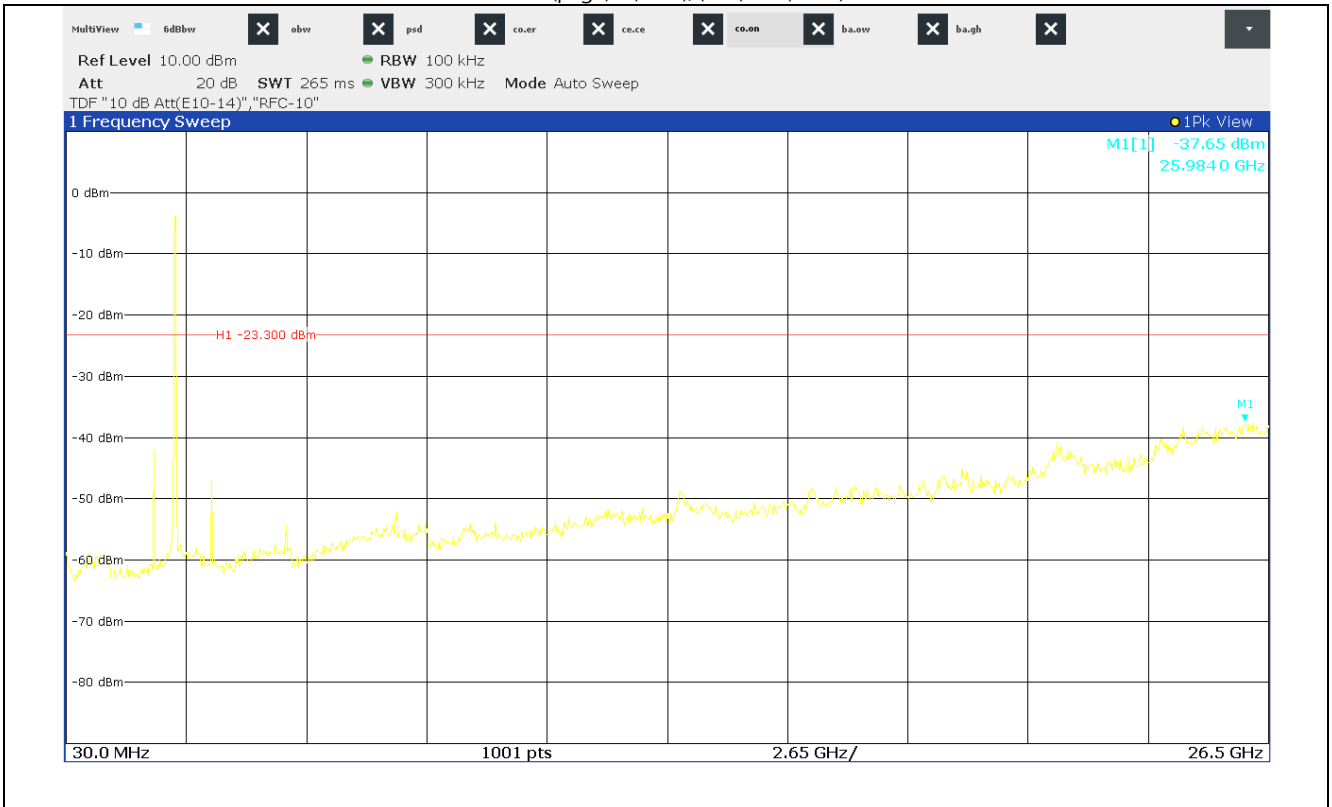


#### Mid CH

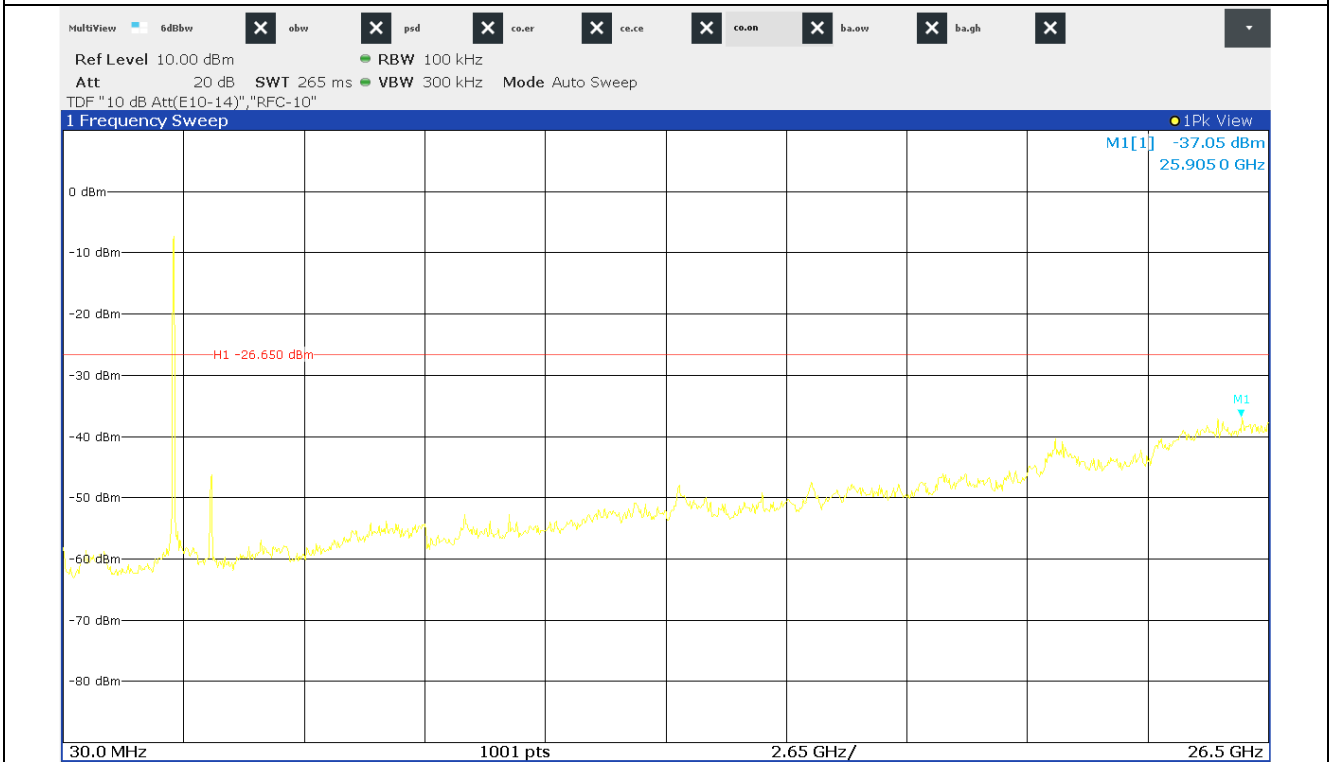


### 8.4.1.5 Unwanted Emissions In Non-Restricted Frequency Bands for 802.11g





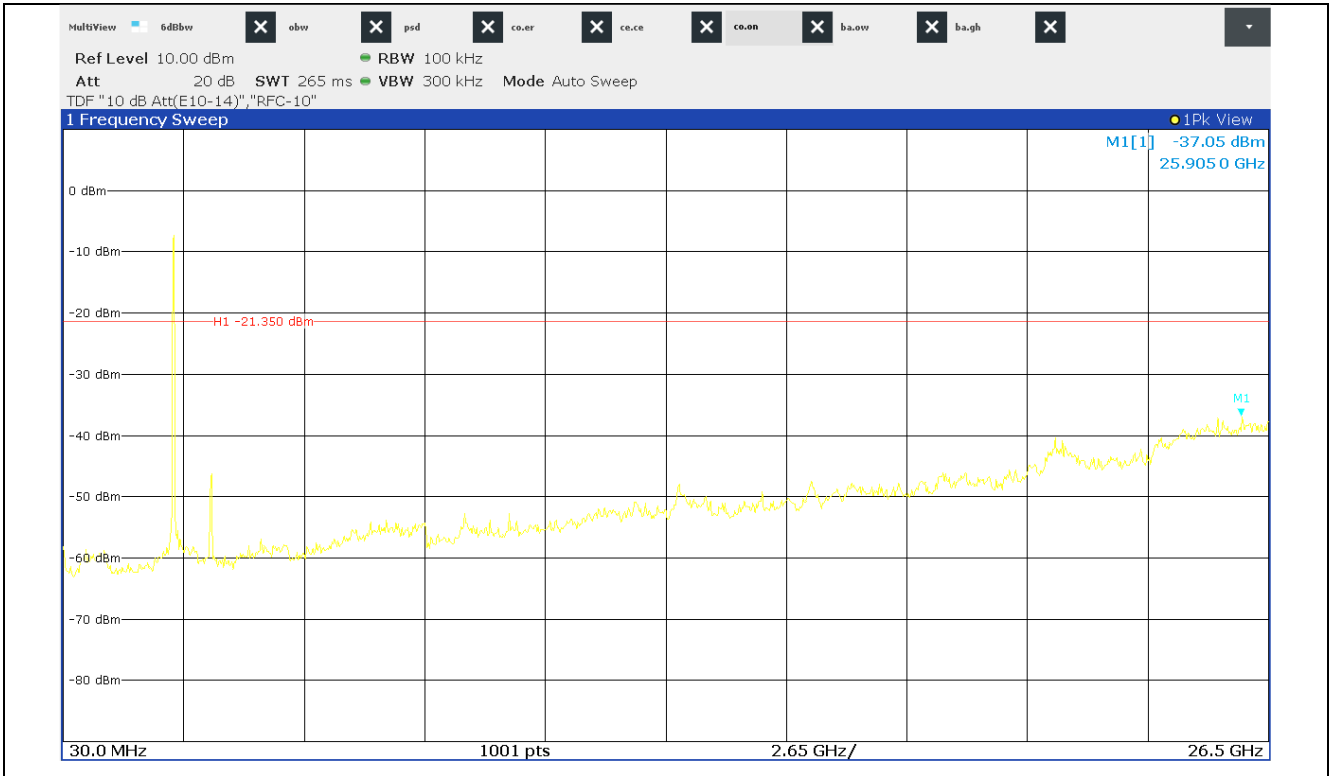
Mid CH



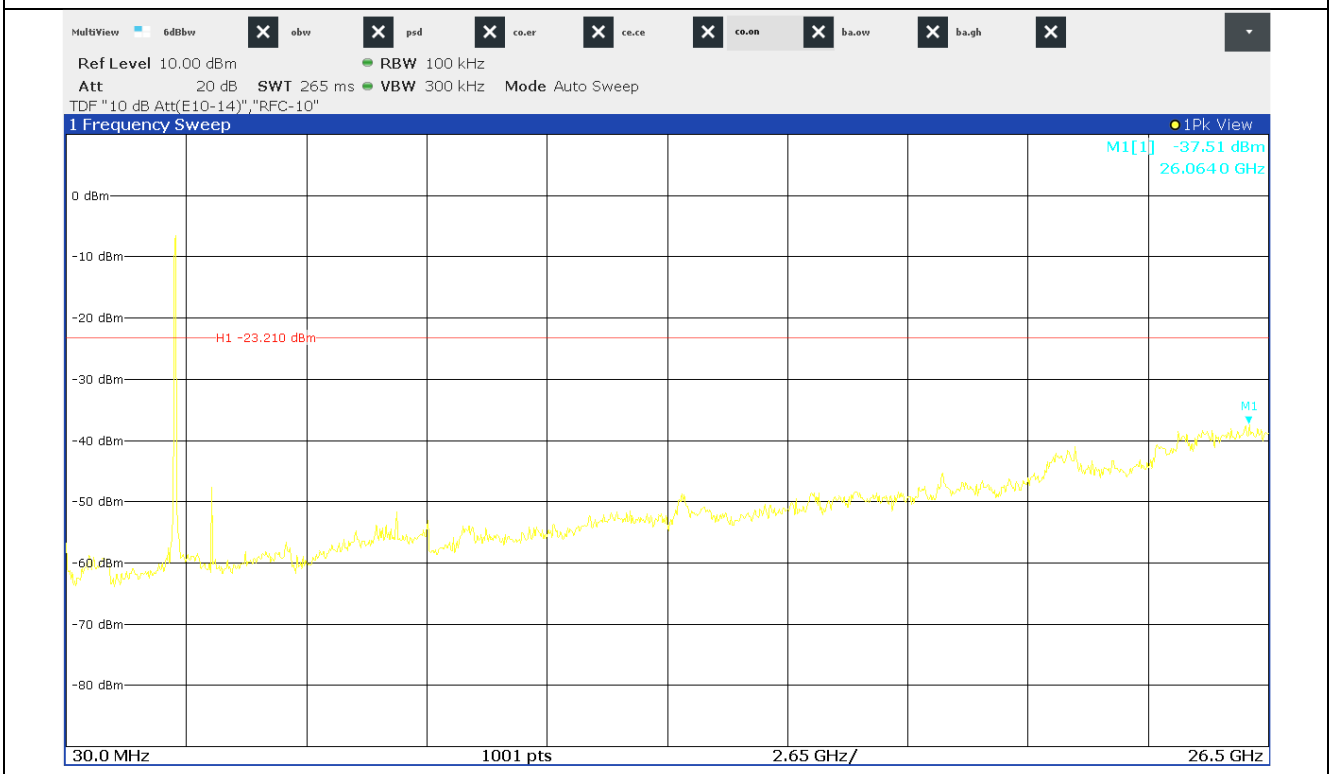
High CH



### 8.4.1.6 Unwanted Emissions In Non-Restricted Frequency Bands for 802.11n(HT20)

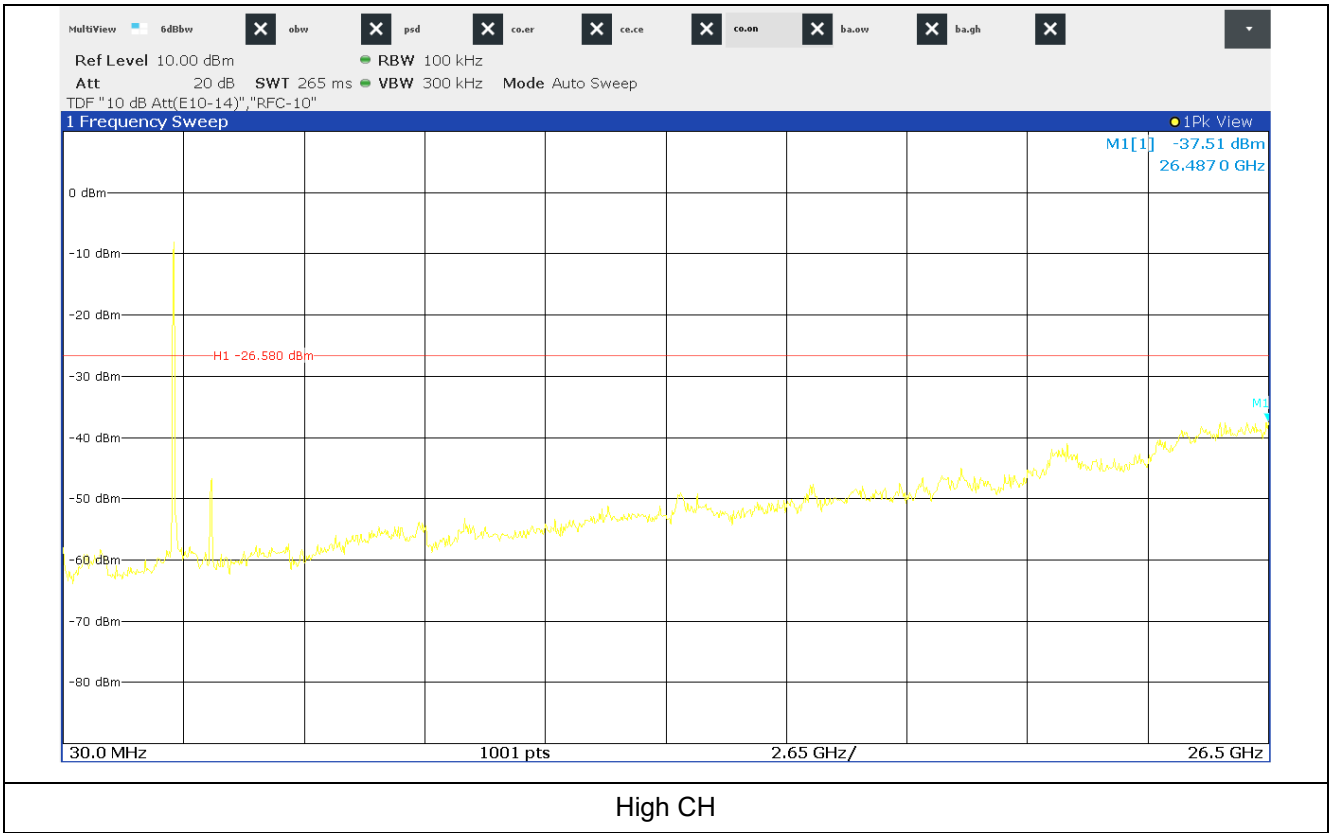


Low CH



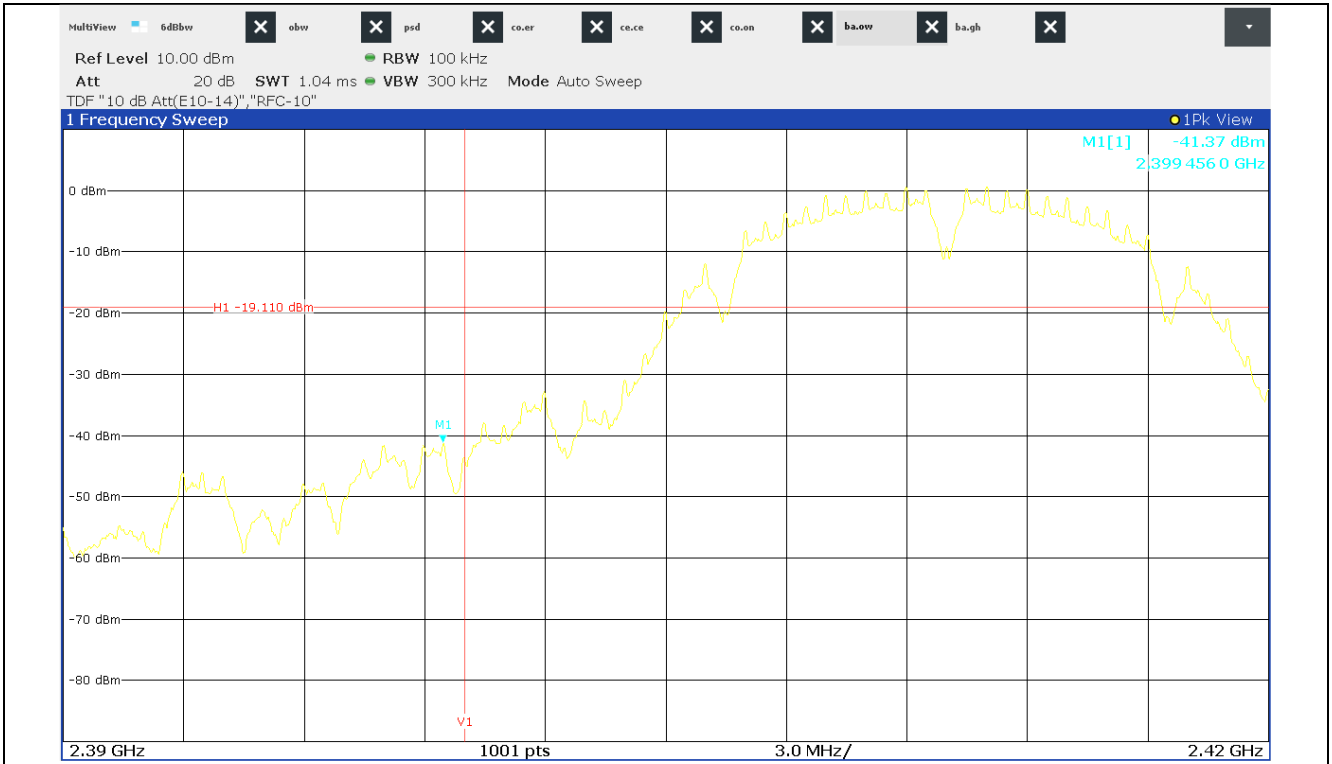
Mid CH



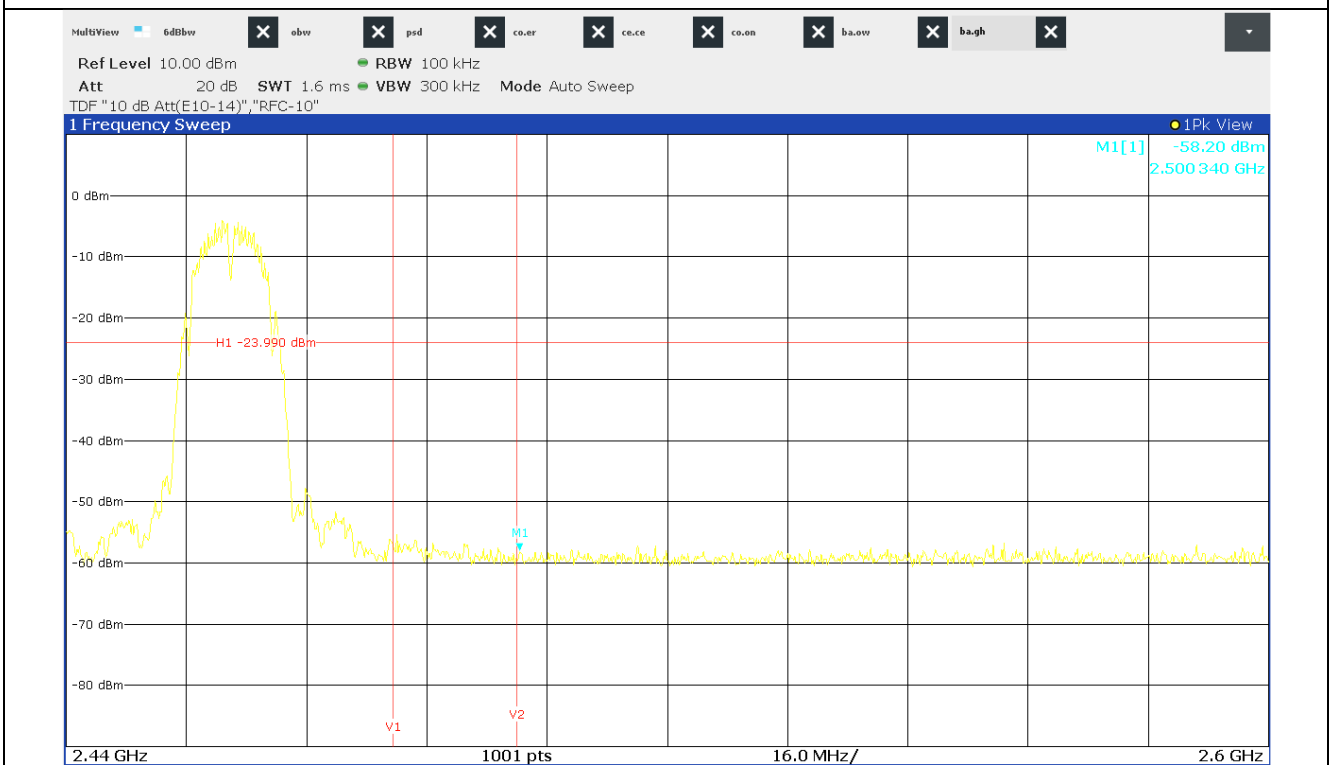




### 8.4.1.7 Band Edge for 802.11b



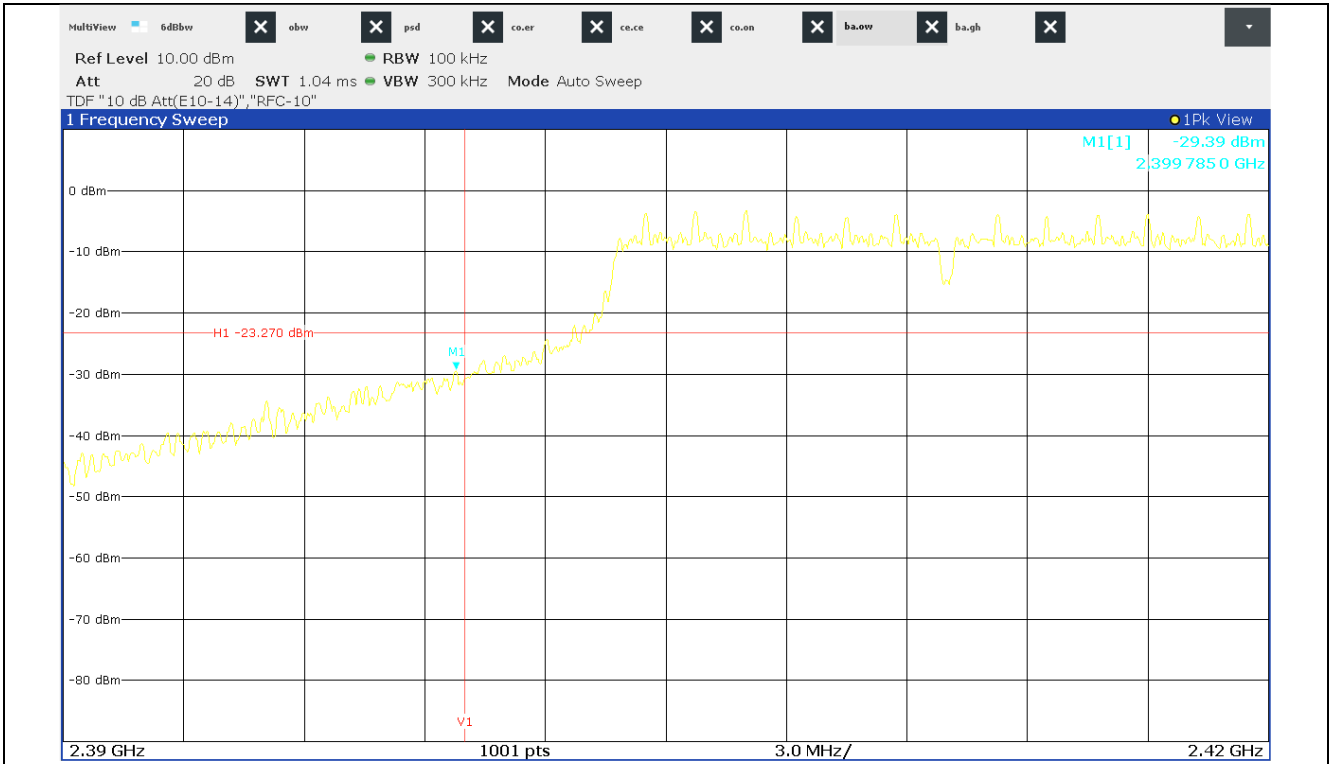
### Low CH



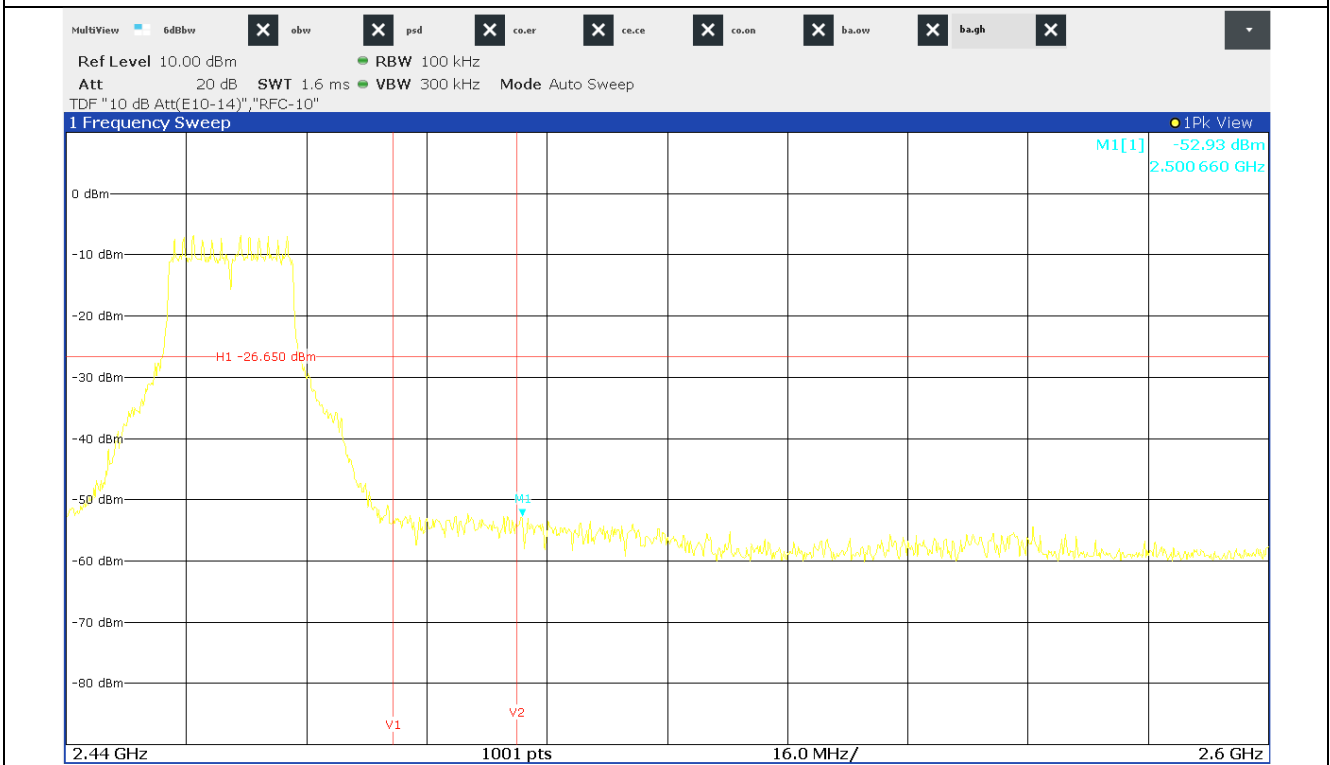
### High CH



### 8.4.1.8 Band Edge for 802.11g



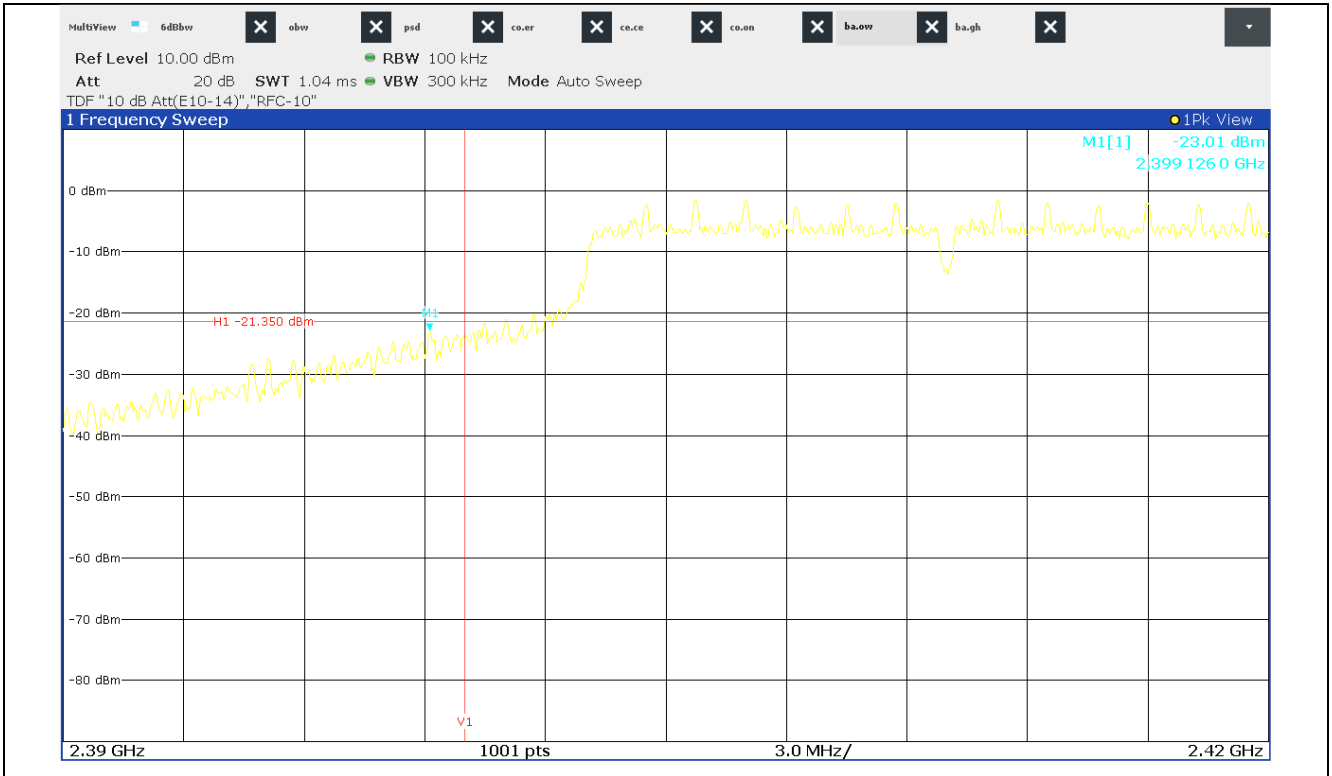
#### Low CH



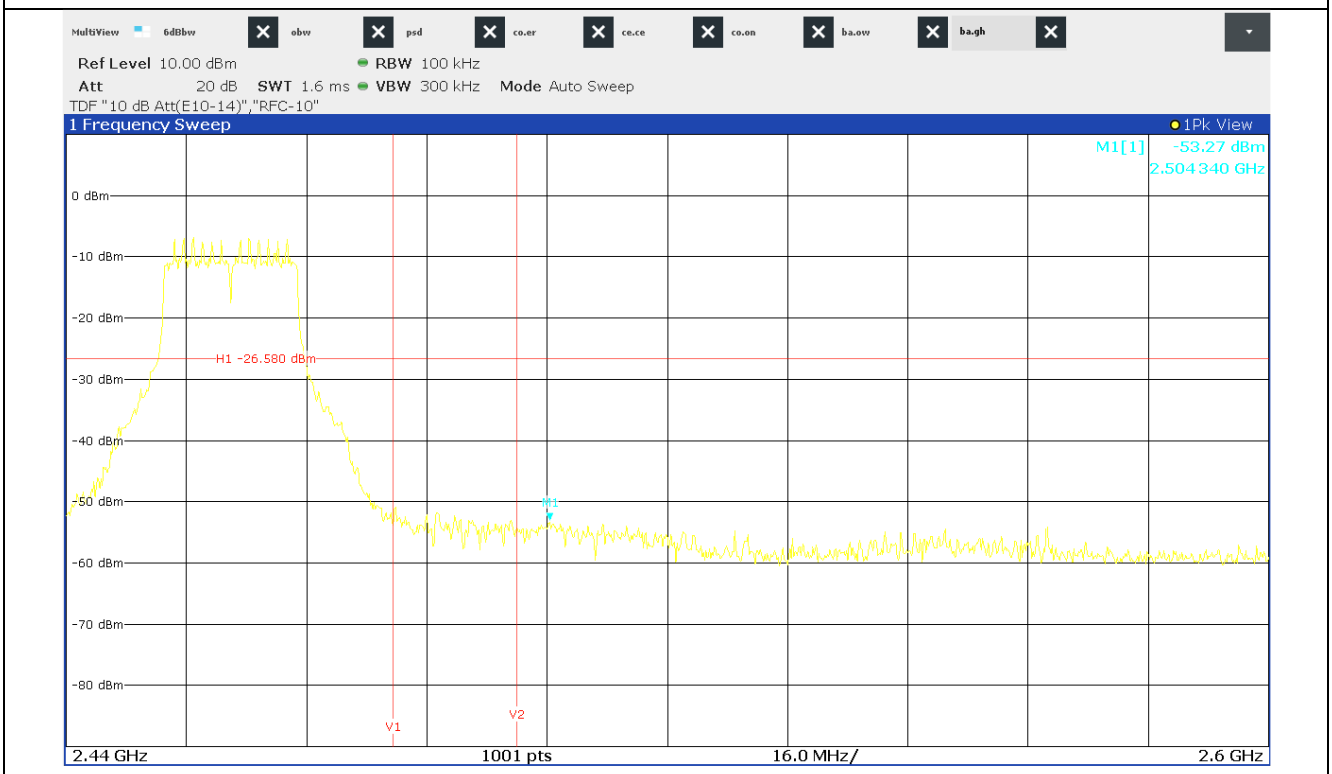
#### High CH



### 8.4.1.9 Band Edge for 802.11n(HT20)



#### Low CH



#### High CH

## 9. Radiated Spurious Emission

### 9.1 Operating environment

Temperature : 24 °C

Relative humidity : 45 %

### 9.2 Measurement method

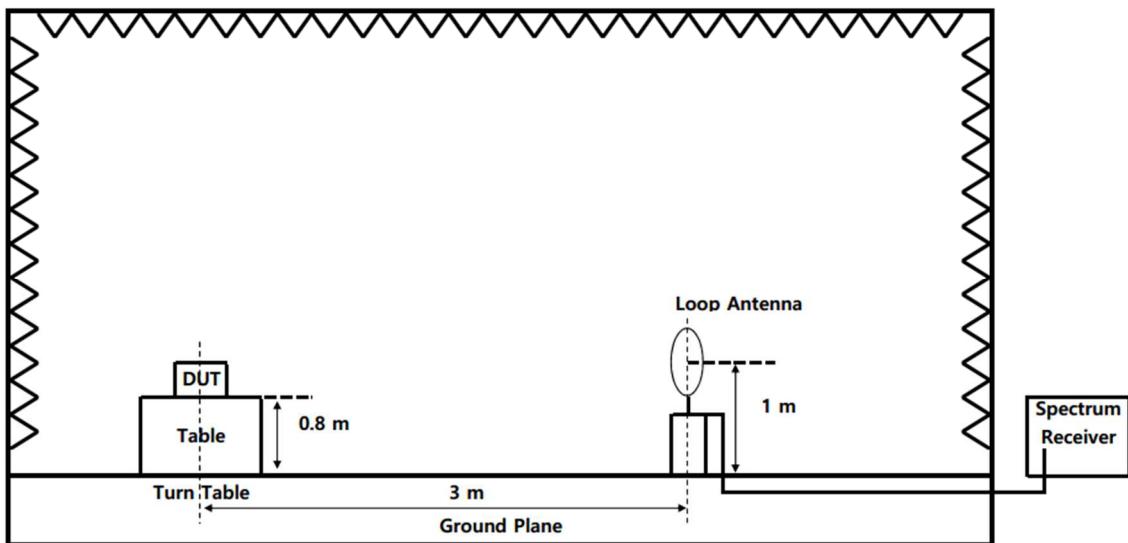
Standard : §15.247 (d), §15.209, §15.205

### 9.3 Test setup

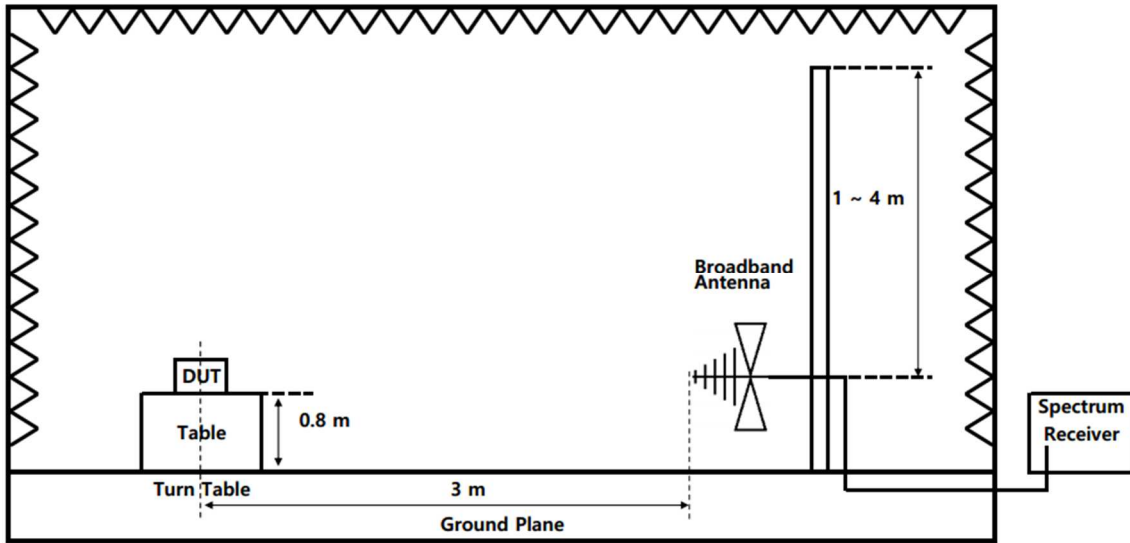
The radiated emissions measurements were performed on the 3 m, Semi-Anechoic Chamber. The EUT was placed on a non-conductive turntable above the ground plane.

The frequency spectrum from 9 kHz to 26.5 GHz was scanned and maximum emission levels at each frequency recorded. The system was rotated 360°, and the antenna was varied in the height between 1.0 m and 4.0 m in order to determine the maximum emission levels. This procedure was performed for horizontal and vertical polarization of the receiving antenna.

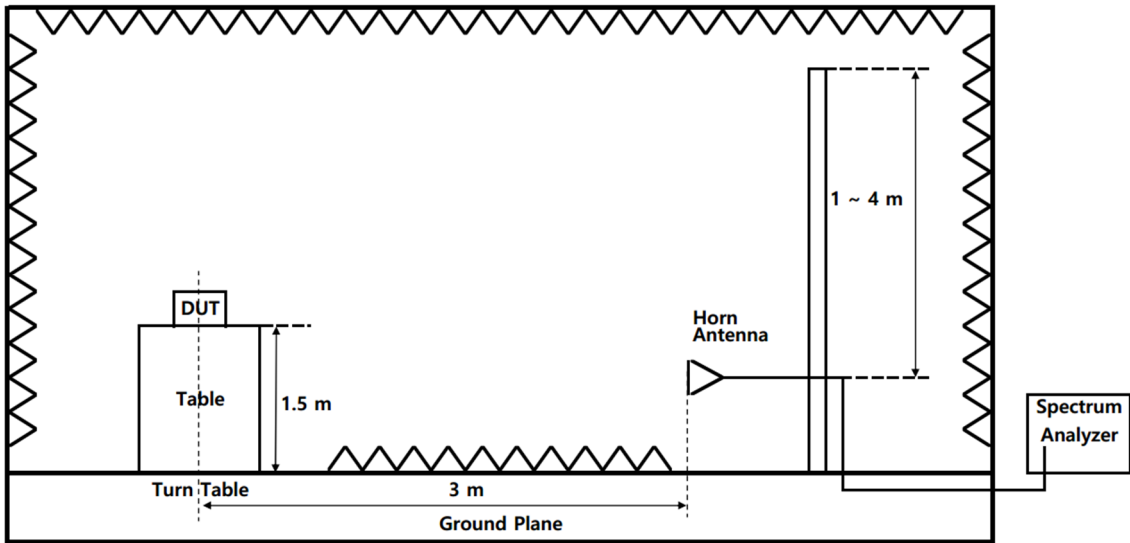
#### 9.3.1 Below 30 MHz



### 9.3.2 30 MHz to 1 GHz



### 9.3.3 Above 1 GHz





## 9.4 Test data

Test date : 06. May. 2021  
 Operating mode : Transmit mode  
 Test Result : Pass

### 9.4.1 Test data for Restricted band

#### 9.4.1.1 802.11b

Frequency (MHz)	Reading (dBμV)	Detector	Ant. Pol. (H/V)	Corr. Factor (dB)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)
Low CH							
2 387.05	60.45	Peak	H	-3.00	57.45	73.98	16.53
	46.90	Average	H		46.90	53.98	7.08
High CH							
2 487.21	54.39	Peak	H	-3.00	51.39	73.98	22.59
	39.49	Average	H		39.49	53.98	14.49

- ※ Ant. Pol. : Antenna Polarization
- ※ Corr. Factor. : Antenna Factor + Cable Loss - Amplifier Gain
- ※ Result = Reading + Corr. Factor
- ※ Margin = Limit – Result

#### 9.4.1.2 802.11g

Frequency (MHz)	Reading (dBμV)	Detector	Ant. Pol. (H/V)	Corr. Factor (dB)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)
Low CH							
2 389.83	73.93	Peak	H	-3.00	70.93	73.98	3.05
	42.68	Average	H		42.68	53.98	11.30
High CH							
2 483.56	74.53	Peak	H	-3.00	71.53	73.98	2.45
	42.10	Average	H		42.10	53.98	11.88

- ※ Ant. Pol. : Antenna Polarization
- ※ Corr. Factor. : Antenna Factor + Cable Loss - Amplifier Gain
- ※ Result = Reading + Corr. Factor
- ※ Margin = Limit – Result



**9.4.1.3 802.11n(HT20)**

Frequency (MHz)	Reading (dB $\mu$ V)	Detector	Ant. Pol. (H/V)	Corr. Factor (dB)	Result (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)
Low CH							
2 389.59	75.40	Peak	H	-3.00	72.40	73.98	1.58
	43.91	Average	H		43.91	53.98	10.07
High CH							
2 483.63	74.77	Peak	H	-3.00	71.77	73.98	2.21
	43.18	Average	H		43.18	53.98	10.80

- ※ Ant. Pol. : Antenna Polarization
- ※ Corr. Factor. : Antenna Factor + Cable Loss - Amplifier Gain
- ※ Result = Reading + Corr. Factor
- ※ Margin = Limit – Result





## 9.4.2 Test data for Spurious & Harmonic

### 9.4.2.1 Measurement Results for below 30 MHz

#### 9.4.2.1.1 802.11b

Frequency (MHz)	Reading (dBμV)	Detector	Ant. Pol. (H/V)	Corr. Factor (dB)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)
Low CH							
It was not found any emissions peaks found from the EUT.							
Mid CH							
It was not found any emissions peaks found from the EUT.							
High CH							
It was not found any emissions peaks found from the EUT.							

- ※ Ant. Pol. : Antenna Polarization
- ※ Corr. Factor. : Antenna Factor + Cable Loss - Amplifier Gain
- ※ Result = Reading + Corr. Factor
- ※ Margin = Limit – Result

#### 9.4.2.1.2 802.11g

Frequency (MHz)	Reading (dBμV)	Detector	Ant. Pol. (H/V)	Corr. Factor (dB)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)
Low CH							
It was not found any emissions peaks found from the EUT.							
Mid CH							
It was not found any emissions peaks found from the EUT.							
High CH							
It was not found any emissions peaks found from the EUT.							

- ※ Ant. Pol. : Antenna Polarization
- ※ Corr. Factor. : Antenna Factor + Cable Loss - Amplifier Gain
- ※ Result = Reading + Corr. Factor
- ※ Margin = Limit – Result



**9.4.2.1.3 802.11n(HT20)**

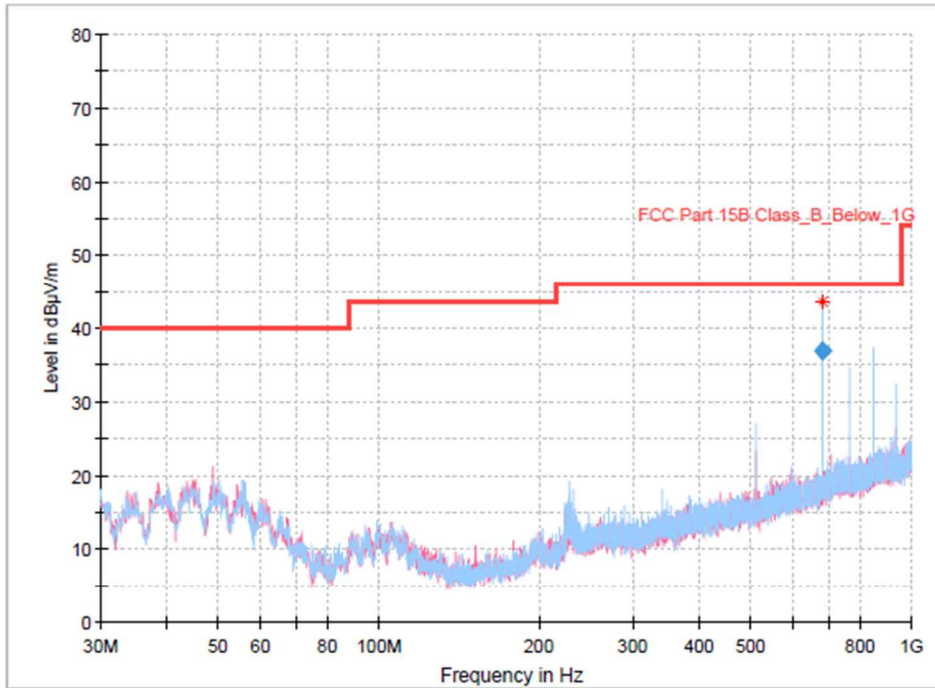
Frequency (MHz)	Reading (dBμV)	Detector	Ant. Pol. (H/V)	Corr. Factor (dB)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)
Low CH							
It was not found any emissions peaks found from the EUT.							
Mid CH							
It was not found any emissions peaks found from the EUT.							
High CH							
It was not found any emissions peaks found from the EUT.							

- ※ Ant. Pol. : Antenna Polarization
- ※ Corr. Factor. : Antenna Factor + Cable Loss - Amplifier Gain
- ※ Result = Reading + Corr. Factor
- ※ Margin = Limit – Result



**9.4.2.2 Measurement Results for below 1 GHz**

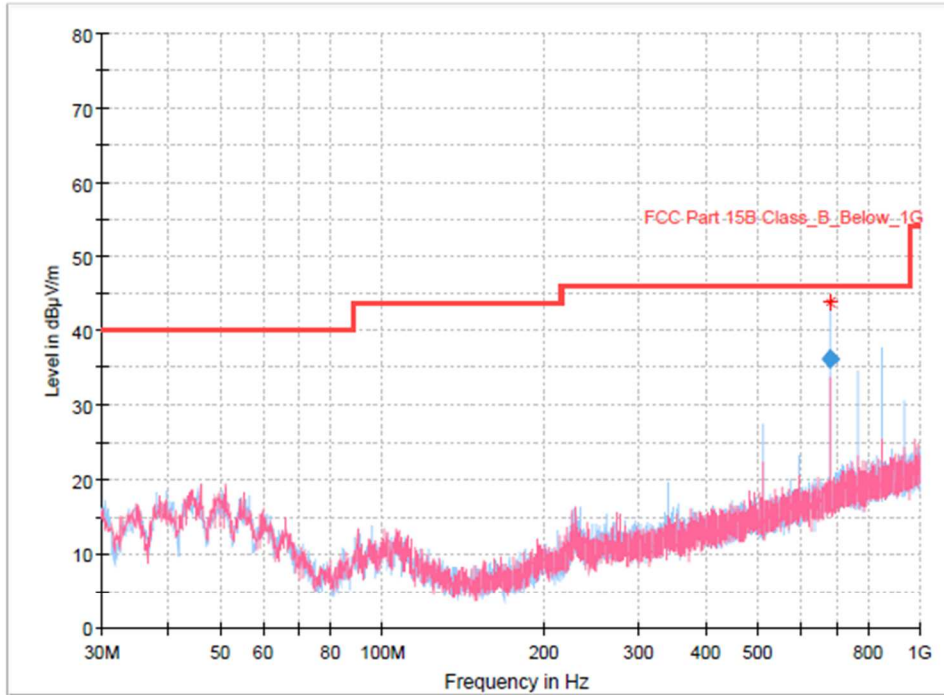
**9.4.2.2.1 802.11b**



**Final Result**

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
680.094000	36.84	46.00	9.16	1000.0	120.000	99.9	H	327.0	-10.3

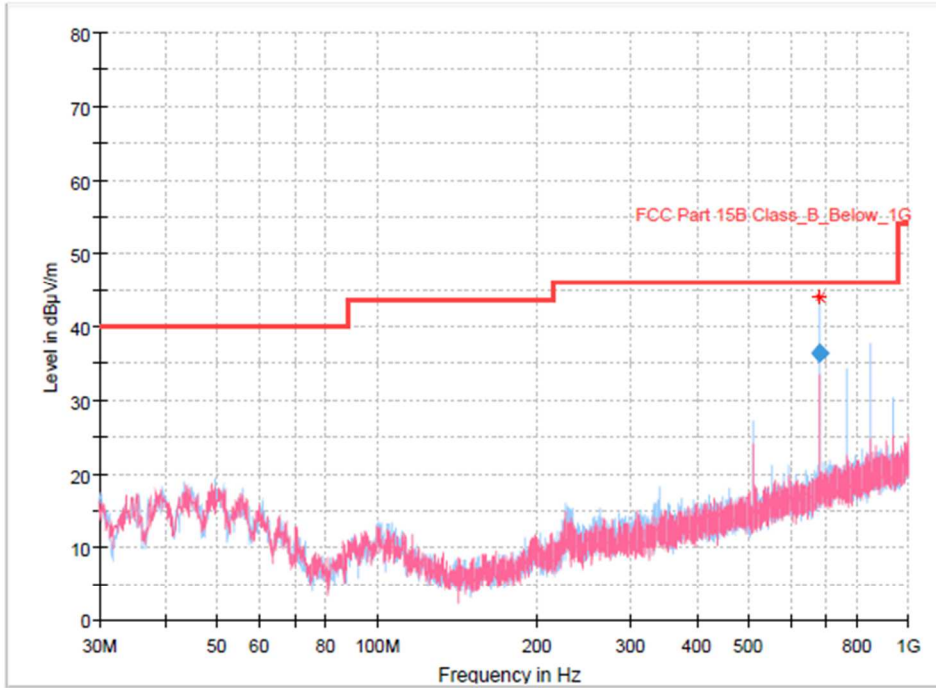
Low CH



**Final Result**

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
680.094000	36.28	46.00	9.72	1000.0	120.000	99.9	H	315.0	-10.3

Mid CH



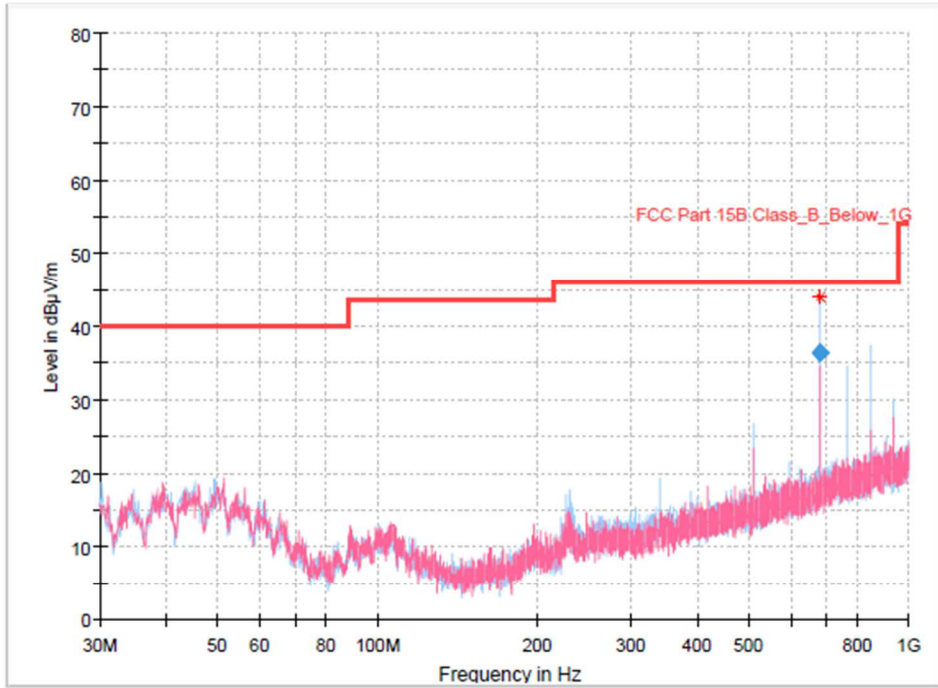
**Final Result**

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
680.094000	36.39	46.00	9.61	1000.0	120.000	99.9	H	317.0	-10.3

High CH



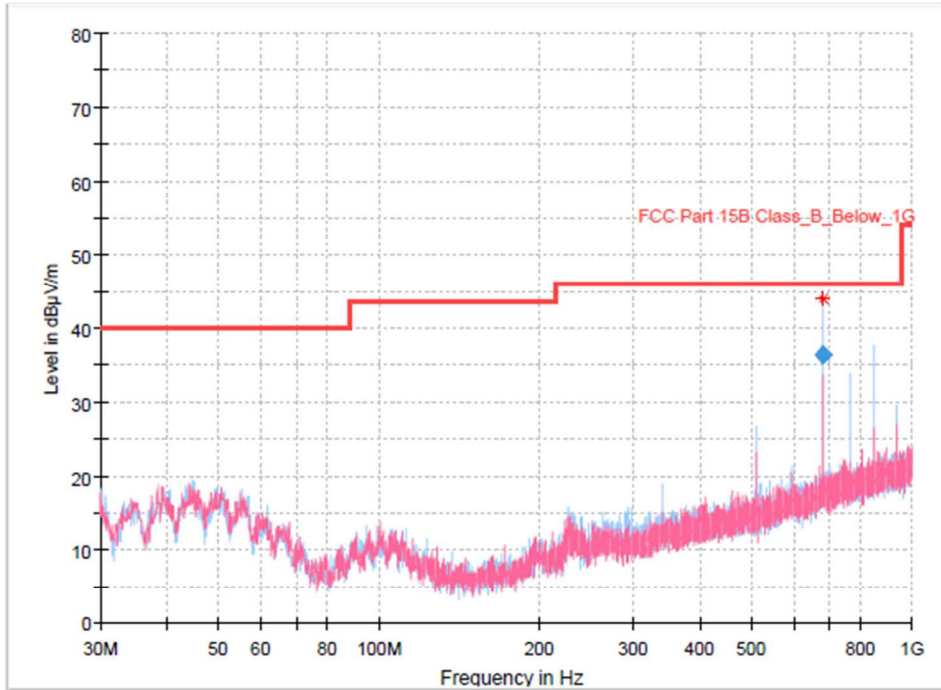
9.4.2.2.2 802.11g



**Final Result**

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
680.094000	36.50	46.00	9.50	1000.0	120.000	99.9	H	318.0	-10.3

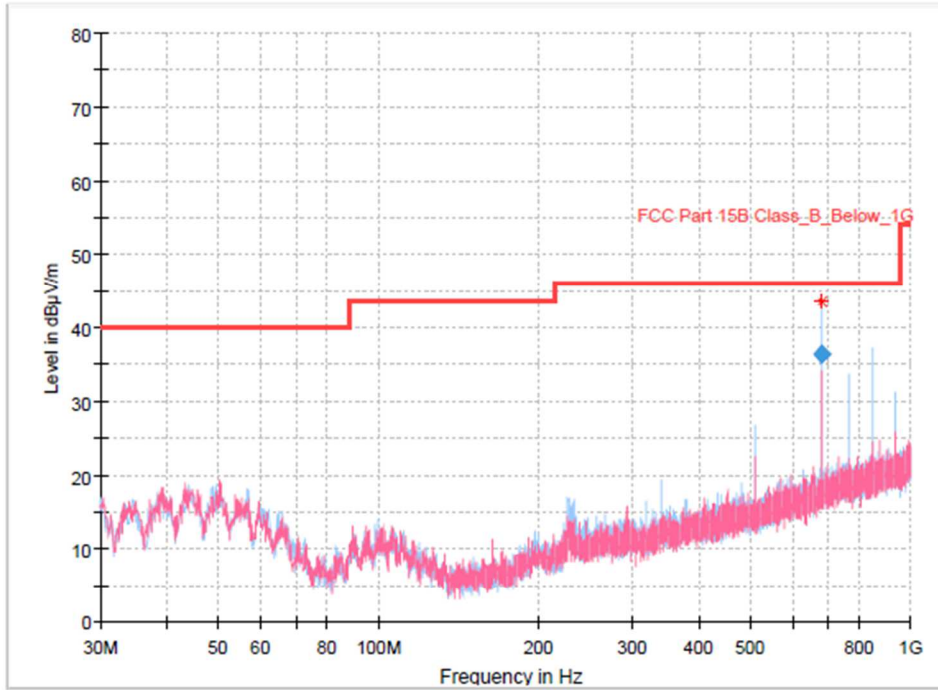
Low CH



**Final Result**

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
680.094000	36.39	46.00	9.61	1000.0	120.000	99.9	H	316.0	-10.3

Mid CH



**Final Result**

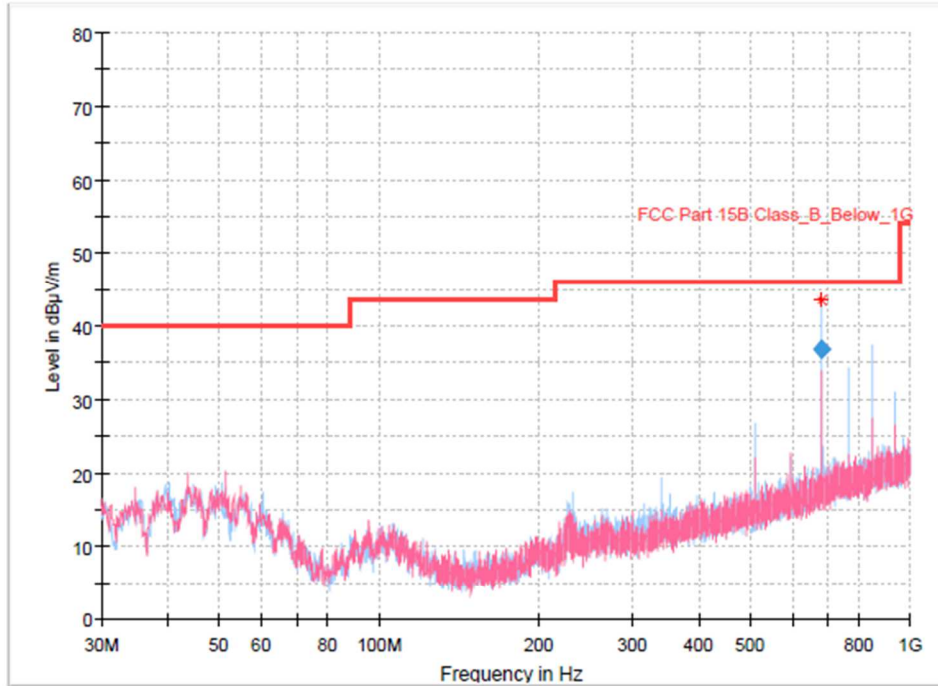
Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
680.094000	36.46	46.00	9.54	1000.0	120.000	99.9	H	318.0	-10.3

High CH





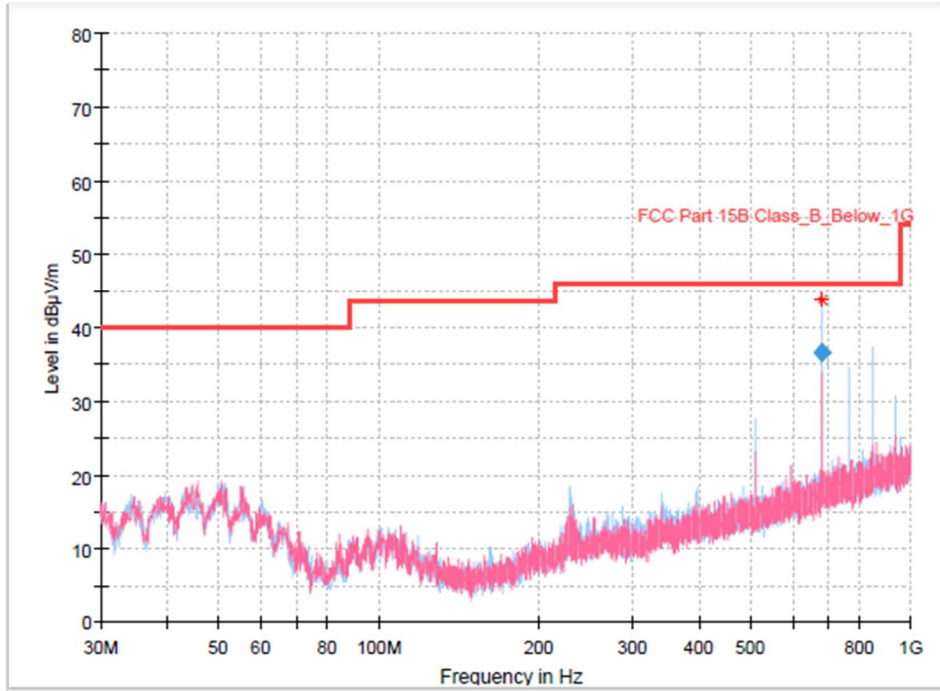
**9.4.2.2.3 802.11n(HT20)**



**Final Result**

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
680.094000	36.88	46.00	9.12	1000.0	120.000	99.9	H	324.0	-10.3

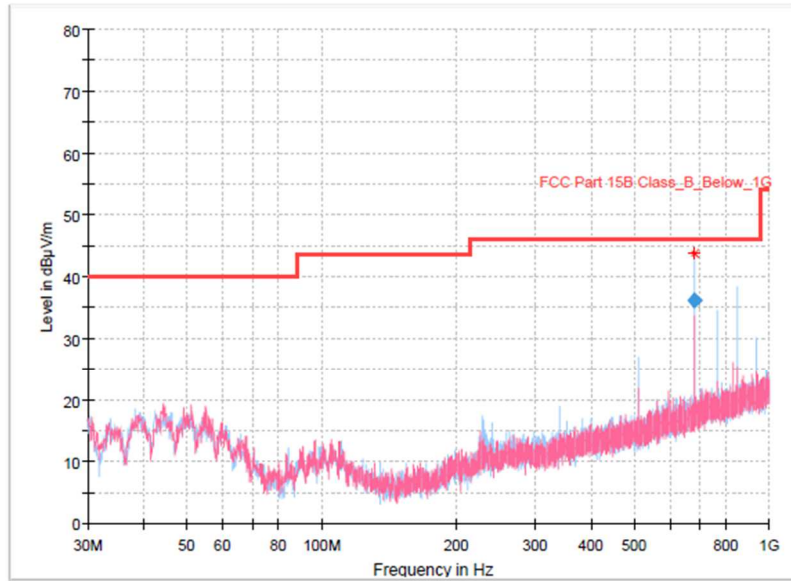
Low CH



**Final Result**

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
680.094000	36.71	46.00	9.29	1000.0	120.000	99.9	H	320.0	-10.3

Mid CH



**Final Result**

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
680.094000	36.12	46.00	9.88	1000.0	120.000	99.9	H	313.0	-10.3

High CH



**9.4.2.3 Measurement Results for Above 1 GHz**

**9.4.2.3.1 802.11b**

Frequency (MHz)	Reading (dBμV)	Detector	Ant. Pol. (H/V)	Corr. Factor (dB)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)
Low CH							
4 823.90	54.47	Peak	H	-4.50	49.97	73.98	24.01
	50.27	Average	H		45.77	53.98	8.21
Mid CH							
4 884.20	55.20	Peak	H	-4.30	50.90	73.98	23.08
	51.30	Average	H		47.00	53.98	6.98
High CH							
4 943.60	55.41	Peak	H	-4.10	51.31	73.98	22.67
	51.12	Average	H		47.02	53.98	6.96

- ※ Ant. Pol. : Antenna Polarization
- ※ Corr. Factor. : Antenna Factor + Cable Loss - Amplifier Gain
- ※ Result = Reading + Corr. Factor
- ※ Margin = Limit – Result

**9.4.2.3.2 802.11g**

Frequency (MHz)	Reading (dBμV)	Detector	Ant. Pol. (H/V)	Corr. Factor (dB)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)
Low CH							
4 824.80	52.29	Peak	H	-4.50	47.79	73.98	26.19
	35.61	Average	H		31.11	53.98	22.87
Mid CH							
4 881.50	55.51	Peak	H	-4.30	51.21	73.98	22.77
	37.89	Average	H		33.59	53.98	20.39
High CH							
4 949.0	57.04	Peak	H	-4.10	52.94	73.98	21.04
	38.52	Average	H		34.42	53.98	19.56

- ※ Ant. Pol. : Antenna Polarization
- ※ Corr. Factor. : Antenna Factor + Cable Loss - Amplifier Gain
- ※ Result = Reading + Corr. Factor
- ※ Margin = Limit – Result



**9.4.2.3.3 802.11n(HT20)**

Frequency (MHz)	Reading (dB $\mu$ V)	Detector	Ant. Pol. (H/V)	Corr. Factor (dB)	Result (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)
Low CH							
4 823.90	51.84	Peak	H	-4.50	47.34	73.98	26.64
	35.50	Average	H		31.00	53.98	22.98
Mid CH							
4 880.60	54.22	Peak	H	-4.30	49.92	73.98	24.06
	36.74	Average	H		32.44	53.98	21.54
High CH							
4 942.70	56.50	Peak	H	-4.10	52.40	73.98	21.58
	39.11	Average	H		35.01	53.98	18.97

- ※ Ant. Pol. : Antenna Polarization
- ※ Corr. Factor. : Antenna Factor + Cable Loss - Amplifier Gain
- ※ Result = Reading + Corr. Factor
- ※ Margin = Limit – Result



## 10. Power Line Conducted Emission

### 10.1 Operating environment

Temperature : 24 °C

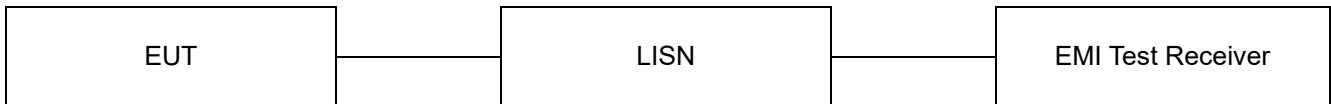
Relative humidity : 44 %

### 10.2 Measurement method

Standard : §15.207

### 10.3 Test setup

The EUT was placed on a wooden table, 0.8 m height above the floor. Power was fed to the EUT through a 50  $\Omega$  / 50  $\mu$ H + 5  $\Omega$  Artificial Mains Network (AMN). The ground plane was electrically bonded to the reference ground system and all power lines were filtered from ambient.

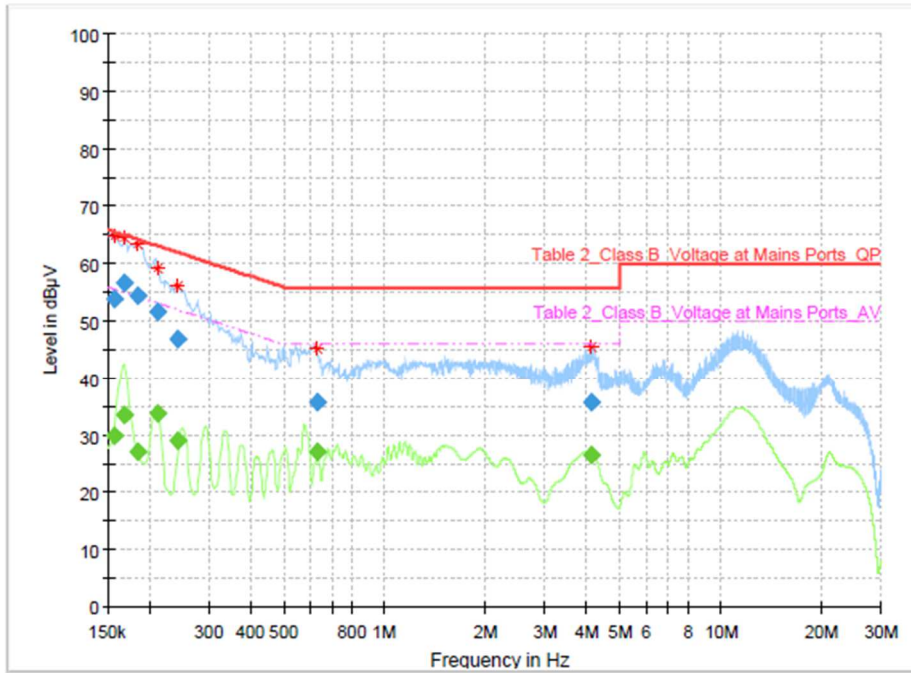




### 10.4 Test data

Test date : 07. May. 2021  
 Operating mode : Transmit mode  
 Test Result : Pass

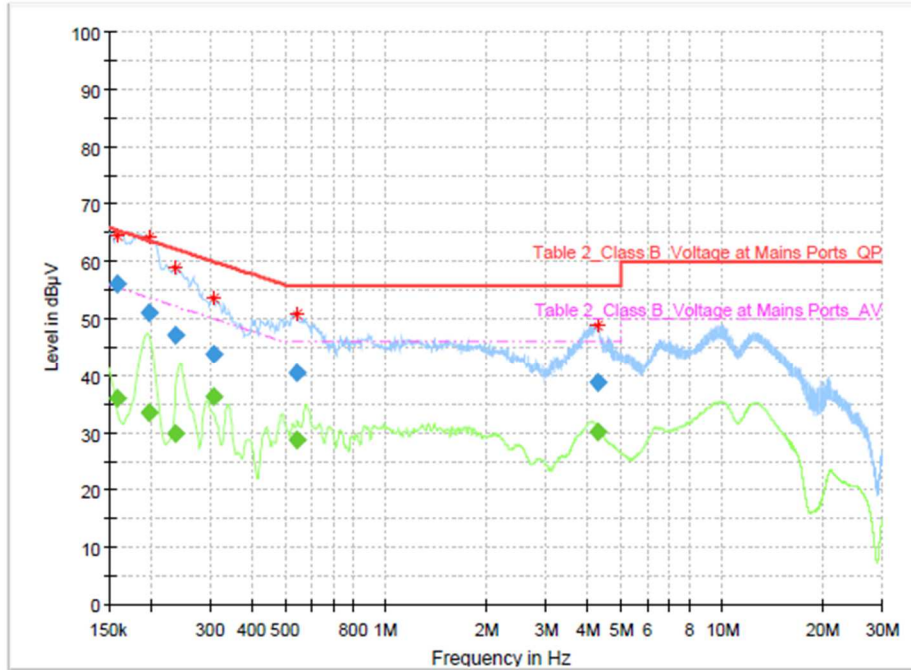
#### 10.4.1 Measured Results & Graph



#### Final Result

Frequency (MHz)	QuasiPeak (dBµV)	CAverage (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Filter	Corr. (dB)
0.157	---	29.92	55.63	25.71	1000.0	9.000	L1	ON	9.8
0.157	53.87	---	65.63	11.77	1000.0	9.000	L1	ON	9.8
0.168	---	33.55	55.06	21.51	1000.0	9.000	L1	ON	10.0
0.168	56.59	---	65.06	8.47	1000.0	9.000	L1	ON	10.0
0.184	---	27.22	54.31	27.10	1000.0	9.000	L1	ON	10.0
0.184	54.46	---	64.31	9.86	1000.0	9.000	L1	ON	10.0
0.211	---	33.71	53.18	19.47	1000.0	9.000	L1	ON	9.8
0.211	51.59	---	63.18	11.59	1000.0	9.000	L1	ON	9.8
0.242	---	28.97	52.02	23.05	1000.0	9.000	L1	ON	9.7
0.242	46.84	---	62.02	15.18	1000.0	9.000	L1	ON	9.7
0.627	---	27.01	46.00	18.99	1000.0	9.000	L1	ON	9.9
0.627	35.84	---	56.00	20.16	1000.0	9.000	L1	ON	9.9
4.115	---	26.56	46.00	19.44	1000.0	9.000	L1	ON	9.7
4.115	35.82	---	56.00	20.18	1000.0	9.000	L1	ON	9.7

Live line



**Final Result**

Frequency (MHz)	QuasiPeak (dBµV)	CAverage (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Filter	Corr. (dB)
0.159	---	36.15	55.52	19.36	1000.0	9.000	N	ON	9.9
0.159	56.25	---	65.52	9.27	1000.0	9.000	N	ON	9.9
0.197	---	33.47	53.73	20.25	1000.0	9.000	N	ON	9.9
0.197	51.00	---	63.73	12.72	1000.0	9.000	N	ON	9.9
0.236	---	29.81	52.25	22.45	1000.0	9.000	N	ON	9.7
0.236	47.25	---	62.25	15.01	1000.0	9.000	N	ON	9.7
0.308	---	36.25	50.04	13.78	1000.0	9.000	N	ON	9.7
0.308	43.87	---	60.04	16.16	1000.0	9.000	N	ON	9.7
0.546	---	28.73	46.00	17.27	1000.0	9.000	N	ON	9.9
0.546	40.41	---	56.00	15.59	1000.0	9.000	N	ON	9.9
4.270	---	30.24	46.00	15.76	1000.0	9.000	N	ON	9.7
4.270	38.96	---	56.00	17.04	1000.0	9.000	N	ON	9.7

Neutral line

- END OF REPORT.